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ACQUIRED ACTIVE IMMUNITY IN THE OX TO CYSTICERCUS BOVIS.

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THE literature on immunity to helminths generally has recently been reviewed by Clapham.[1] If her survey be a complete one, it appears that only one instance of immunity to the larval stage of cestodes has been proved. This was done by Miller and Massie,[2] who have shown that the albino rat can be immunized against *Cysticercus fasciolaris*, the larval stage of *Tænia tæniæformis* of the cat. They have done a great deal of work on the subject and have used large numbers of experimental rats. Miller and Massie thus opened up the field of immunity to the larval stages of cestodes, and their work on this subject is of much scientific interest. With regard to immunity to adult cestodes, the joint work of Turner, Berberian and Dennis[3] has probably great practical possibilities in preventing hydatid in man and other animals. They showed that dogs can be artificially immunized against infestation by *Tænia echinococcus*. All the treated dogs were not absolutely immune to the dose of hydatid cysts with which they were fed, but they showed a very marked resistance to infestation as compared with the controls.

Our immunity experiments were planned in 1933 and commenced on January 19, 1934, by artificially infesting oxen so that the life history

of *Cysticercus bovis* in the tissues of the ox might be studied. The oxen used for these experiments were bought on the open market. After closely examining many cattle slaughtered at the abattoirs and twelve cattle from the group we used, and finding them free from *Cysticercus bovis*, we assumed the experimental animals were not and had not been infested before the experiment was started. As the experiments proceeded we were satisfied this assumption was correct. Other observations that tended to confirm this were:

1. *Tænia saginata* infestation of man is rare in Victoria.[4]

2. The practice of eating raw or almost raw beef in this country is extremely unusual.

3. The methods of disposal of human excreta in country districts are considered to be fairly satisfactory.

4. Cattle are grazed on large areas and are not usually hand fed or specially brought into the vicinity of the homestead.

5. Of eighty-eight oxen bought in the open market, to which we fed *Tænia saginata* ova in various experiments, all contracted infestation with *Cysticercus bovis*, that is, none were found immune.

All these facts led us to the conclusion that the chance of the experimental cattle being infested with *Cysticercus bovis* before we acquired them was extremely remote.

We first studied the life history of *Cysticercus bovis* by artificially infesting 30 oxen each with 400,000 viable *Tænia saginata* eggs from the one batch and killing one or more after various periods of time. We estimate that these oxen each developed 11,000 to 30,000 cysticerci. In this way we traced the development, degeneration and absorption of the beef measles. There were considerable variations in the cysticerci of the same age from animal to animal and even in the same animal. However, after studying infestations of different ages, namely, from fifteen days to one year, we found the differences in appearance between recent and old infestations to be very striking. In these heavily infested oxen no live cysticerci were found that were older than nine months and cysticerci older than seven months were rarely found alive. The old degenerated cysts were markedly different from the degenerated cysts found in animals with recent infestations. Almost all cysts ten months old or more had contents which were dry, dirty yellow and hard, but they were never so hard that they could not be crumbled between the finger and thumb. The young degenerated cysts of recent infestations had moist green pasty contents. Numerous other cysticerci were examined from cattle grazing on a farm irrigated with human sewage. The approximate age of these cysts was known and the *post mortem* examinations confirmed our views on the appearance of cysts of different ages. This will be dealt with in detail in a later communication. After this study we had no doubt that we could judge the approximate age of cysticerci sufficiently accurately for the experiment which we were about to perform. We say approximate age because there are wide variations in the appearance of cysts of any particular age.

To sum up, when we started the immunity experiments we knew: (i) that all of eighty-eight cattle bought on the open market were susceptible to *Cysticercus bovis*, that is, they possessed no natural or acquired immunity; (ii) the appearances of cysticerci of various ages.

Experiment I.

Four oxen, approximately two and a half years old, were used. Three of them had each been drenched with 400,000 viable *Tænia saginata* ova fifty-three weeks five days previous to this experiment. They had been branded D_2. Because we had never found an immune animal bought in the open market, only one control was used to prove the viability of the eggs to be given. This ox had been branded C_2 and depastured for the previous fifty-three weeks four days on non-contaminated land along with those branded D_2.

The batch of *Tænia saginata* ova used was obtained from the ripe segments of several worms. They had been thoroughly mixed and accurately counted. Three doses, each of 400,000 eggs, were prepared.

On January 30, 1935, the ox branded C_2 and two of those branded D_2 were each drenched with water containing 400,000 *Tænia saginata* eggs. A "D" was added to each of the brands, so that the brand C_2 was increased to C_2D and the brands D_2 to D_2D. The remaining animal bearing the brand D_2 was not drenched or further branded. The four oxen were kept separately for twenty-four hours and then depastured on clean land. They were slaughtered and examined on April 17, 1935 (that is, eleven weeks after drenching). A minute examination was made of the sites of election (heart, masticatory muscles, diaphragm and tongue), which were cut into slices 3·0 millimetres (one-eighth of an inch) in thickness and, in addition, half of each carcass was cut into slices of approximately 1·25 centimetres (half an inch) in thickness.

Results.

The results of the experiments were as follows.

Ox C_2D.—This ox was the control proving the viability of the ova used (see Figure I). The animal showed definite evidence of a recently acquired infestation. The cysticerci were moderately large. The bright green colour of the moist contents of the degenerated cysticerci was typical of that found in the degenerated measles of a recently acquired infestation. The cysticerci were distributed throughout the carcass. Only one cyst in one hundred examined was found alive. This is quite consistent with an infestation of only eleven weeks of age. The degree of infestation was heavy, but not so heavy as has sometimes been found in other animals which had received the same dose of eggs. There is no doubt that the cysticerci found were developed from the eggs administered to the ox on January 30,

1935. It was concluded that a representative sample of the batch of eggs used was capable of producing heavy infestation in oxen.

FIGURE I.[1]
(Experiment I), C_1D. Control proving the viability of the ova used.

Ox D_2.—This ox was a control showing recovery from the primary infestation of sixty-five weeks' duration (see Figure II). During a minute examination only the slightest evidence of the old infestation was found. Only two dead cysticerci, approximately one millimetre in widest diameter, were detected in the whole of the sites of election. None at all were discovered in the dressed carcass.

Conclusion.—Taking into consideration the observations made in the experiment on the life history of the parasite, this animal had been heavily infested by the eggs it received on January 19, 1934, but that at the time of slaughter almost all the cysticerci had been absorbed.

Oxen D_2D.—These oxen demonstrated complete or partial recovery from the primary infestation of sixty-five weeks' duration and immunity to our attempts at secondary infestation. Two animals bore the brand D_2D. We shall speak of one as D_2D and the other as D_2D_1.

D_2D (see Figure III). After careful examination only two minute degenerated cysticerci (one millimetre in widest diameter) were found in the sites of election. These were evidently the residual cysts resulting from the primary infestation; no cysts were detected in the dressed carcass.

D_2D_1 (see Figure IV). This ox was heavily infested with old degenerated cysticerci of small size, evidently derived from the primary infestation. The contents of the cysticerci were dry, gritty and of a dirty yellowish colour. No cysticerci were found which might be only eleven weeks old.

Summary.—Two oxen that we had heavily infested with *Cysticercus bovis* by drenching each with 400,000 *Tænia saginata* eggs, were absolutely immune to further infestation by the same dose of eggs administered approximately one year later.

FIGURE II.
(Experiment I), D_2. Control showing recovery from a primary infestation of sixty-five weeks' duration.

Conclusion.—At least some oxen, one year after being heavily infested with *Cysticercus bovis,* are immune to further infestation.

Comments.

This experiment, small though it is, appears to us to be quite a satisfactory one on which to base the conclusion drawn. Of the 88 cattle which had

[1] All the photographs are sections of heart muscle; they have been slightly reduced in size. The amount of reduction can be estimated from the gauge reproduced in each instance; each division represents one millimetre. The most or one of the most heavily infested portions of each animal is represented.

been given viable *Tænia saginata* eggs in other experiments, many only one-quarter of the present dose, no animal had been found absolutely immune;

FIGURE III.
(Experiment I), D_2D. Animal demonstrating practically complete recovery from a primary infestation of sixty-five weeks' duration and absolute immunity to our attempt at secondary infestation.

that is, of 88 tested, 88 were found to be susceptible. It seems, therefore, to be very unlikely that we should find two out of two animals to be absolutely immune to such a massive dose of eggs unless the primary infestation received by the two had immunized them.

Experiment II.

The second experiment was performed to confirm the observations on immunity and to determine whether the immunity still remained seventy weeks after the cattle were artificially infested. Cattle from the same group as those used in Experiment I were selected. Four oxen approximately two and three-quarter years old were used. Two of the oxen had each been drenched with 400,000 *Tænia saginata* ova on January 19, 1934, seventy weeks before being drenched a second time. They had been branded D_2. The other two oxen had not been infested and had been branded C_2. They were to be infested to prove the viability of the ova. All the four oxen had been depastured on the same non-contaminated pasture since January 19, 1934. For twenty-four hours preceding the attempt at reinfestation all the cattle were kept on dry feed to insure that their stools would be formed and so minimize the possible loss of ova. We had previously shown that under these conditions no viable ova were expelled in the fæces of a calf that had been heavily dosed with living eggs.[5] The mature ova to be used were obtained from several worms. They were thoroughly mixed, counted and divided into doses of 400,000 each.

On May 23, 1935, the four oxen were each drenched with water containing 400,000 *Tænia saginata* ova. A "D" was added to each of their brands, so that the final brandings were D_2D and

FIGURE IV.
(Experiment I), D_2D_1. Animal demonstrating partial recovery from a primary infestation of sixty-five weeks' duration and absolute immunity to our attempt at secondary infestation.

C_2D; that is, two animals bore the brand D_2D and two C_2D. The four oxen were then depastured on clean land. On July 23, 1935, approximately nine weeks later, they were removed from the clean land, slaughtered and examined. A minute examination was made of the sites of election (slices three milli-

metres or one-eighth of an inch in thickness) and, in addition, half of each carcass was cut into slices approximately 1·25 centimetres (half an inch) in thickness. Superficially the results, as shown in the photographs, would have been more striking if we had not slaughtered the animals until a further three weeks had elapsed. By that time the cysticerci in the control animals would have been larger.

Results.

The results were as follows.

Oxen C_2D.—These oxen were controls proving the viability of the eggs used. Two animals bore this brand. One is spoken of as C_2D and the other as C_2D_1.

C_2D (see Figure V). The ox was very heavily infested throughout the whole carcass. A very large percentage of the cysts were alive. Those degenerated showed the typical appearance of early degeneration.

FIGURE V.
(Experiment II), C_2D. Control proving the viability of the ova used.

C_2D_1 (see Figure VI). This ox was also heavily infested, but only a small percentage of the cysts were alive. Most of the cysts were smaller for their age than others we have examined. The degenerated cysts had moist green contents typical of recent degeneration.

Conclusion.—A representative sample of the batch of eggs used was capable of producing heavy infestation in oxen.

FIGURE VI.
(Experiment II), C_2D. Control proving the viability of the ova used.

Oxen D_2D.—These oxen showed recovery from the primary infestation and demonstrated immunity to our attempt at secondary infestation. Two animals bore the D_2D. One is spoken of as D_2D and the other as D_2D_1.

D_2D. The careful examination disclosed no cysticerci. There was no evidence even of the primary infestation.

D_2D_1. This ox showed a small number of degenerated cysticerci of one millimetre in diameter. These were so small and difficult to see that an estimation of their number was not made. Their appearance indicated that they were the residual cysts of the primary infestation. Most of them consisted mainly of fibrous tissue. No cysts were found that might be only nine weeks old.

Conclusions.—(*a*) At least some oxen, seventy weeks after being heavily infested with *Cysticercus bovis*, are immune to further infestation. (*b*) Two

oxen showed no significant signs of a very heavy primary infestation of 79 weeks' duration.

Comments.

These results confirm the fact discovered in Experiment I, namely, that oxen can be immunized

Figure VII.
(Experiment II), D_2D. Animal demonstrating complete recovery from a primary infestation of seventy-nine weeks' duration and absolute immunity to our attempts at secondary infestation.

against the acquisition of beef measles. In Experiment I immunity was shown to be present fifty-four weeks after the primary infestation, whereas in Experiment II immunity was shown to be present seventy weeks after the primary infestation.

Discussion.

By combining the results of the two experiments it will be noted that four out of the four animals that had received a primary infestation were immune to a secondary infestation, although a large dose of ova was used. Three control animals of the same age and kept under similar conditions, but which had not previously been infested, all contracted heavy infestation from the massive dose of eggs we employed. All of eighty-eight oxen used in other experiments and varying in age from six months to four years, acquired *Cysticercosis bovis* when ova were fed to them. Many of these eighty-eight received only 100,000 eggs each, whereas in these immunity experiments 400,000 eggs were administered to each of the test animals.

We have three more oxen which were artificially infested on January 19, 1934, and which we shall test for immunity at an early date.

Further confirmation of immunity to *Cysticercus bovis* is obtained by considering the results of the *post mortem* examinations of approximately three-year-old cattle grazing on a farm irrigated with crude sewage.

Group A.—Forty-six *per centum* of 641 cattle that had each grazed on the farm for an average of six months were found infested.

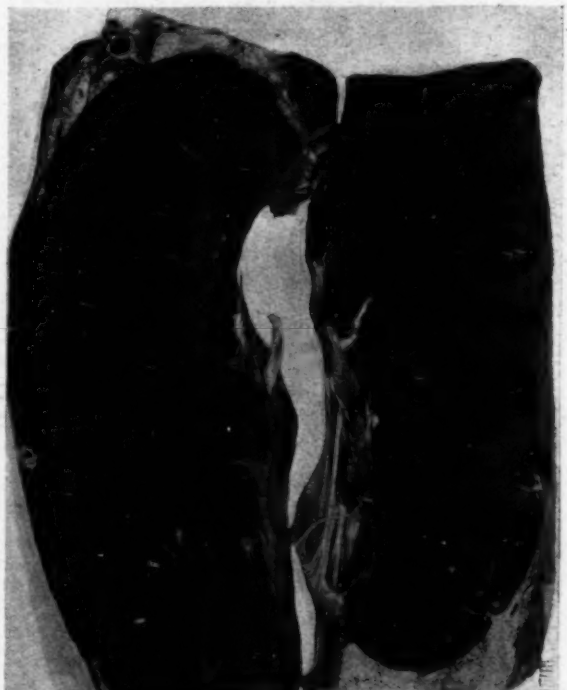

Figure VIII.
(Experiment II), D_2D_1. Animal demonstrating almost complete recovery from a primary infestation of seventy-nine weeks' duration and absolute immunity to our attempts at secondary infestation.

Group B.—Thirty-three *per centum* of 171 cattle that had grazed on the farm for an average of fifteen months were found infested.

Group C.—Only fourteen *per centum* of 79 cattle that had grazed on the farm for an average of three years were found infested.

All the cattle in Groups A, B and C were grazed on the same farm, the pastures of which received approximately the same volume of sewage per unit area. The cattle were slaughtered immediately on removal from the farm. They were slaughtered over a period of eleven months in mixed batches, each batch containing animals from Groups A, B and C. The number of animals containing live cysts was not accurately recorded, but in Group A it was approximately 10% to 20% of the affected animals. Almost all the infested cattle were only lightly infested.

At a later date 3,681 cattle were slaughtered from the same farm and 25% were found infested. In only 0·38% of the 3,681 were live cysts detected. All these cattle had been on the farm from one to four and a half years, and all were on the farm at the time when Group A cattle were grazing there.

It will be seen from the foregoing facts that the longer the cattle grazed on contaminated pasture, the smaller the percentage found affected on slaughter.

Further evidence is given by the following observations. Of ten three-year-old to four-year-old cattle that had grazed on the farm for eight to ten months, seven were found infested in the sites of election after a searching examination. Three of the animals contained living cysts. Of nine cattle bred on the farm and grazed there for three and a half to four and a half years, only one was found affected on searching examination. This was an ox, three and a half years old, which contained five cysts in an advanced stage of degeneration. We have made many similar observations, all easily explicable on the basis of acquired immunity, but, as far as we can see, inexplicable on any other basis.

Practical Application.

Now that immunity developed against *Cysticercus bovis* has been demonstrated, the task confronting workers is to find the best way of using it in practice. In certain circumstances, such as those prevailing on farms irrigated with untreated human sewage, it would be quite a practical procedure to give the calves the disease when they were three months old, allow them to graze on the contaminated pastures, and slaughter them at two and a half to three and a half years of age. Although we have not yet tested this in practice, we would be very surprised if the oxen were not found free of infestation when slaughtered. The cysts of the primary infestation would have been absorbed, while eggs ingested subsequently to the initial drenching would be unable to develop.

Similarly, in parts of Syria, Africa and India, *Tænia saginata* infestation is so frequent and the sanitary conditions are so primitive that it is not practical to prevent oxen from grazing on pastures or drinking water contaminated with *Tænia saginata* ova. Beef measles is extremely frequent in these parts, so frequent as to make it economically difficult to procure measle-free beef. In these countries certainly only a small percentage of the infestations is detected by the methods of meat inspection employed. We believe that immunity would have a special value under these conditions, as well as on farms irrigated with raw sewage.

The possible methods of immunizing cattle other than by giving them the living ova by mouth we shall not discuss, as our many ideas on the subject have not yet been tested. If the live vaccine were to be used and the cattle given the disease, it would be advisable to determine the following: (i) the minimum dose of eggs required to produce a solid immunity; (ii) the stage at which the immunity develops and when it disappears, if at all; (iii) the age at which all cysts die when cattle are given the minimum immunizing dose; (iv) the time necessary for all cysts to be absorbed in cattle immunized with the minimum immunizing dose.

Immunity probably shows itself in two ways. First, as it develops as a result of the primary infestation it kills these primary immunizing cysticerci. Secondly, having developed, it prevents eggs subsequently ingested from developing into cysticerci. As the immunity is probably quantitative, cysts may possibly take longer to die and, therefore, to be absorbed, if only a few are present.

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PROGRESS IN PSYCHIATRY: 1910-1935.[1]

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My predecessors in this chair have set a high standard in the addresses which they have delivered on the termination of their office. If in this review of the progress of our specialty during the past twenty-five years I shall at least set in action some trains of thought, I shall be well satisfied.

In spite of improvement in technique and of greater understanding of the general pathology of the brain, more especially of the reaction of its various elements to injury, infection and new-growth, little has been added to the territory of the clearly organic in mental disorders since the work of Alzheimer in 1897. The pathological basis of the two important syndromes, manic-depressive psychosis and *dementia præcox*, which together

[1] Address of retiring Chairman, read at a meeting of the Section of Neurology and Psychiatry of the New South Wales Branch of the British Medical Association on December 6, 1935.

account for some 50% of admissions to mental hospitals and for a higher proportion of the inmates with chronic conditions, is still undetermined.

Both Alzheimer and Nissl described dissolution of nuclear protoplasm, lipoid accumulation, cell destruction and increased activity on the part of the neuroglia in *dementia præcox*. Mott[1] repeated their work and made further investigations into staining reactions reported in 1920, and brought forward evidence in favour of defective oxidation in the cortical neurones, based on accumulation of lipoid in the middle layers of the cortex, both within the bodies of the neurones and along the smaller vessels. Mott also attached some importance to what he regarded as an abnormally oxyphile staining of the nuclei of the neurones.

In his search for possible causes of defective oxidation Mott turned his attention to the endocrines and described degenerative changes in the adrenal and pituitary glands, but more especially in the gonads, which he supposed pointed to an inherent lack of vitality. Mott's investigations on heredity in the psychoses and his statement of the law of anticipation (the occurrence of psychosis in certain families at an earlier age in successive generations) no doubt led him to emphasize inherent rather than acquired defects. Mott's pathological work has by no means found general acceptance amongst other competent workers, and with regard to heredity Paterson,[2] after following up several of the families studied by Mott some twenty years earlier, has shown that the age of onset of psychosis in the children of insane parents conforms to the law of anticipation far less frequently than Mott supposed. Unfortunately most of the material studied by mental hospital pathologists comes from cases of long standing, when the patients have died of some infection which may itself have been of considerable duration. Until we have more knowledge as to the range of variation in "normal" brains and of changes incidental to disease in other parts of the body, we shall not be able to speak with confidence about the cerebral pathology of psychoses occurring before the period of involution. The only material which is of real value to the neuropathologist is that derived from young insane persons who have died through violence. There is, however, another aspect of cerebral pathology which merits attention. In 1894 Hughlings Jackson[3] suggested that a man might inherit a brain with fewer functional elements in the highest centres. "He inherits a brain which will 'give out' more early under unfavourable circumstances than the brain of the average man." In 1914 appeared Shaw Bolton's "Brain in Health and Disease", based on the work of many years. Bolton attempted to show that mentally abnormal individuals of various types other than those with definite intellectual defect, namely, psychopaths, manic-depressives and paranoiacs, also displayed some degree of sub-evolution of the grey matter and so really belonged to the category of aments or true mental defectives. Another large group of the insane contains those who suffer from dementia or premature decay of the cortical neurones, and cases also occur displaying both sub-evolution and early dissolution of neurones in the frontal lobes. Bolton indeed suggests that in many cases of general paralysis there is an innate tendency to dementia which is quite independent of the spirochætal invasion. At the recent meeting in Melbourne, Professor Bouman, of Amsterdam, described areas of diminished vascular supply and paucity of neurones in the brains of schizophrenics, whether congenital or acquired as yet undetermined. We may therefore bear in mind this aspect of neuropathology, namely, a quantitative rather than a qualitative defect. How much of our practice consists in protecting and guiding those who are unable under average stresses to pursue an even tenor within a limited range of responsibility!

The demonstration by Noguchi and Moore in 1912 of spirochætes in the brain provided an important link in the chain of evidence regarding the ætiology of general paralysis. Exactly what determines the invasion of the central nervous system and the long period of apparent latency (on an average ten years) before physical signs and mental changes occur remains a matter for research. I would remind you of the papers of Head, Fearnsides, McIntosh and Fildes,[4] not so much for their discussion of possible allergic factors as for their account of the pathology and clinical manifestations of neurosyphilis. The recognition of mixed forms with both "meningovascular" and "parenchymatous" involvement appeals to me and sometimes provides a solution to difficulties in clinical diagnosis. There is, I think, a tendency in some mental hospital circles to enlarge unduly the category of general paralysis and to include, for example, cases of an essentially meningovascular type with a secondary non-progressive dementia. Then we have the curious observation that cases of apparent general paralysis, when death has occurred some time after malarial treatment, display a neuropathology of a meningovascular type. I will refer later to the therapeutic aspects of malaria. The progressive dissolution of function of this essentially organic condition of neurosyphilis is often paralleled by mental states which are not yet proved to have an organic basis, for example, delusions, emotional and temperamental excesses, including moral changes. And, speaking of moral changes, the last two decades have provided us with the cruel experiment of Nature performed by the virus of epidemic encephalitis, whereby a law-abiding, amiable youngster may be transformed into an irresponsible, violent hooligan. One might speculate as to the possible ætiology of virus or microbic infection in other psychiatric syndromes. Occasionally one meets with apparently normal adolescents who develop a rapidly progressive psychosis with severe physical and mental changes and terminating in a fixed state of rude health, but with grossly impaired mentality. These cases of so-called acute katatonia clinically simulate more the reaction to

some infection, and appear to be a class apart from the more numerous cases of one-sided personality developing a psychosis over a period of years.

Biochemistry of the Psychoses.

To return to the biochemistry of the neurones. Mott suggested that oxyphile staining indicated a reduction in organic phosphorus. But this has not been borne out by chemical analysis of the brain. It is doubtful whether chemical analysis of *post mortem* material will lead us much further. Doubtless finer and more accurate methods will be devised of measuring the metabolism of the living brain. Clinical observation of the ready susceptibility of the brain to lack of oxygen suggests that normally there is a most efficient mechanism for supplying the brain with essential substances and for removing waste products, and that function may be seriously impaired through an imbalance which is slight compared with what may obtain in other organs.

Mott's successor in the Central Laboratory of the Mental Hospitals of the London County Council, Dr. F. L. Golla, has directed research to the general metabolism of the psychoses. Investigations by his associates and by numerous workers elsewhere on the blood sugar curve, urinary reactions, respiratory exchange and basal metabolism all point to depression of function. In brief, the psychotic is described as being physically and mentally in a state of sleep. It must, however, be noted that most of these investigations can be carried out only on quiet, passive subjects. Are these biochemical changes, which, after all, do not deviate so greatly from the normal, fundamental or secondary, the cause or merely the result of a reduction of activity?

General Paralysis.

In 1842 Mason Good, in his "Textbook of Mental Diseases" suggested that patients suffering from fits with madness should be allowed to acquire a sharp attack of fever in the marshes of Essex. No one seems to have taken much notice of this suggestion until Wagner-Jauregg revived it in 1887. Wagner-Jauregg, however, induced pyrexia with tuberculin and other agents before he actually inoculated several general paralytics with malaria in 1917. The result was so encouraging that he began to use malarial therapy on a larger scale in 1919, and in 1922 reported that 50 out of 200 patients were enjoying a complete remission. Wagner-Jauregg received the Nobel Prize in 1927. Malarial treatment was first used in England in July, 1922, and in 1929 Meagher[5] reported as follows on the results of treatment: Of 1,597 patients with general paralysis treated in various mental hospitals in England within five years, 34% had died, 25% had been discharged, and 41% were still in hospital. Of the discharged patients, 75% were at least capable of some sort of productive work. As a control, of 624 patients who had not received malarial treatment during the same five-year period, 90% had died, 2% had been discharged and 8% were still in hospital. The majority of untreated patients had not been rejected as unsuitable, but were in mental hospitals in which malarial treatment had not yet been adopted.

Malarial treatment was instituted in the mental hospitals of New South Wales in 1926, and at the Australasian Medical Congress of 1929 Henry[6] reported that of 190 treated general paralytics, 75% had been discharged able to earn a living, while an equal number had been discharged but were deemed to be unemployable. We are still in doubt as to how malaria acts, but the success claimed by inductothermal treatment indicates that pyrexia is the important factor. A new arsenical compound, tryparsamide, introduced by the Rockefeller Institute, was made available to the Maudsley Hospital, London, by the Medical Research Council before it was put on the English market. The Maudsley cases were reported in 1925.[7] There is no doubt that tryparsamide is a valuable adjunct to pyrexial therapy, and a course of injections may also be given as a preliminary to a patient who appears to be too weak to stand malaria. It seems only reasonable to follow up pyrexial therapy with courses of tryparsamide and bismuth or mercury. Pyrexial therapy is of value for the relief of pain and other symptoms in tabes, and might well be used earlier in other varieties of neurosyphilis, especially when the more usual methods of treatment are no longer exerting any beneficial effect on the serology or the clinical condition.

Is there any change in the type or incidence of neurosyphilis? In his annual report for 1927 Dr. Ernest Jones stated that the incidence of general paralysis of the insane had fallen 50% in the preceding fourteen years. In New South Wales the admissions of male paretics to mental hospitals averaged 344, 332, 300, 337, 295 during successive five-year periods since 1910, so that the reduction in numbers of general paralytics is only slight.

Professor George Robertson[8] pointed out that, according to the statistics of the Registrar-General of England and Wales, there has been a decided fall in the number of deaths from general paralysis since 1919, and suggests that this is due to more successful treatment of primary infection since the introduction of "Salvarsan" in 1910.

In the mental hospitals of New South Wales the deaths from general paralysis among males number 305, 363, 297, 277 and 199 in successive five-year periods since 1910, there being a decided fall since 1928, doubtless due to the introduction of malarial therapy. On the other hand, the number of male general paralytics remaining in hospital at the end of each year has been mounting steadily since 1920. Orban,[9] in a communication to the International Neurological Congress of 1935, concluded from his observations of 829 cases between 1913 and 1932 that there is a relative increase of the simple dementing over other forms, that the course run by paretics is becoming more benign, that in recent years the latent period is longer, the age of onset higher, and the death rate reduced.

Mental Hospitals and their Inmates.

In a recent address Dr. Edward Mapother[10] mentioned the following classes of institutions for the mentally disordered:

1. Homes for mental defectives.
2. Homes for the senile.
3. Psychiatric clinics for curable and voluntary in-patients, with out-patient departments.
4. Hospitals for treatment up to two years of curable, unwilling or indifferent patients.
5. Colonies for voluntary patients with chronic conditions.
6. Institutions for chronic unwilling or non-volitional insane.

Subdivisions of this type have much to recommend them on humanitarian and other grounds, but are practicable only in more thickly populated countries, and have already been provided to a great extent in the County of London since the amalgamation of the London County Council and the Metropolitan Asylums Board. In the British Empire, New South Wales was early in the field with public provision for the voluntary boarder. It is interesting to note that the establishment of both Broughton Hall and the Maudsley Hospital, London, although contemplated for some years, was hastened by War needs and both were in due course reopened for civilian patients, Broughton Hall in 1922, the Maudsley Hospital in January, 1923. Slow but steady progress has been made, particularly in the last fifteen years, towards the removal of legal disabilities in the treatment of the insane and towards the provision of facilities for treatment in the early stages of mental disorder in persons of limited means. It is interesting to note that of patients admitted to the mental hospitals of New South Wales under certificate, 22% are discharged within three months of admission, 19% are discharged within three to six months of admission, and 18% are discharged within six to nine months of admission; so that 59% of patients admitted are discharged within nine months. If more of these cannot be treated on a voluntary basis, I would urge that some temporary treatment measure be introduced on the lines of the English act of 1930, or according to the procedure long established in Scotland. The *Mental Treatment Act* of 1930 provides for detention for six months, with possible extension for a further period of three months. Under the Scottish Act of 1857 the medical practitioner may commit a patient to a mental hospital for temporary residence for a period not exceeding six months if he considers that "the malady is not confirmed".

Early treatment necessitates suitably and attractively designed admission wards, well away from the "chronic sections" of mental hospitals, so that recovery may take place without association with the chronically insane. Great improvements have taken place in this respect in the older mental hospitals in England and also in Australia. A camouflaged address may have quite a valuable psychological effect.

Considerable responsibility rests with the medical officers attending the reception houses. Of 1,400 patients admitted to reception wards in various parts of this State, some 30% are discharged to their homes after a period of observation. One would like to see a progressive policy in this aspect of the work of the Mental Hospitals Department ensuing, so that patients are not just classified into the sheep and the goats: those that must and those that need not be certified. More use might be made of treatment on a voluntary basis, and amongst those not needing institutional treatment and discharged to their friends many no doubt would benefit by attendance at an out-patient clinic.

The Incidence of Neurosis.

Although it is generally admitted that the amount of functional, nervous or neurotic illness in the average civilized community is not inconsiderable, estimates are hard to obtain, since neurotics do not come under official notice in the same way as the majority of the insane. Indeed, only a proportion may seek medical advice, and as likely as not a diagnosis is made of some physical abnormality. Cassidy[11] states that 29% of patients referred to him as a cardiologist presented no evidence of organic cardio-vascular disease. While he does not class all these as neurotics, he stresses the importance of considering the patient's attitude towards his symptoms. Leaders in other specialties are constantly reminding us of the emotional factor in so many of the conditions met with in general and special medical practice. Halliday[12] has recently reviewed 1,000 consecutive patients in receipt of sick benefit under the English *National Health Insurance Act*, and after exhaustive physical examination, including laboratory tests, and after referring doubtful cases to consultants in various specialties, concludes that one-third of these patients are "functionals" or psychoneurotics. Yet 98% of these three hundred odd cases had been given a diagnosis indicating organic disease. Moreover, Halliday arrived at his final opinion not merely by a careful exclusion of physical illness, but also by the positive method of considering the whole circumstances of each case—in his words: "Why he took ill, when he did, and how he did, as well as the purpose served by the illness." Among the primary diagnoses of these cases Halliday noted most frequently gastritis, gastric or duodenal ulcer, anæmia, rheumatism, lumbago, sciatica, neuritis, debility. Other patients presented some physical abnormality, but neurotic symptoms appeared to be the major or sole cause of incapacity for work.

It is essential for the general practitioner to be alive to the psychological or emotional aspects of his patients' illnesses and not to deceive himself or his patient when the physical condition fails to explain the symptoms. Further, the general practitioner must continue to deal with most of these cases himself, a duty for which, from his knowledge of the patient, and the patient's family and general circumstances, he should be well equipped.

The Teaching of Psychiatry.

Graduates of many medical schools have had some reason to complain that as students they

received little instruction in psychological medicine beyond a few lectures and demonstrations on the insanities. But even before the establishment of the Chair of Psychiatry in 1923, the University of Sydney was not neglectful of this subject. In the report of the conference of representatives from the medical schools and examining bodies in England published last year, it is recommended that a short course of about eight lectures should be given towards the end of the preclinical period covering the following aspects of general psychology: instinctive behaviour and its development; emotions and their expressions; habits; impulse, desire, volition; suggestibility; sentiments, temperament, character; conscious and unconscious mental processes; perception, imagery, higher mental processes; intelligence, memory, fatigue.

During the clinical period the student should attend at least six demonstrations at a mental hospital in order to become acquainted with advanced insanity, the grosser forms of mental deficiency and the administration of special institutions.

Since neuroses and psychoneuroses play such a part in general practice, the members of the conference were of opinion that more should be done to make the student familiar with this aspect of his future work, and that the mental outlook of patients suffering from organic disease should also be brought to notice. To this end it is suggested in the report that demonstrations on the psychological aspects of disease should be held at least once a fortnight throughout the student's period of in-patient clerking and dressing, to be undertaken by the physician or surgeon in charge or by the teacher of psychological medicine. Some such development as this was foreseen by Hughlings Jackson in 1894, when he said:

> I submit that the scientific study of insanities may be best begun in general hospitals, for in them we encounter cases in which there are very slight departures from the patients' normal state. We see in these hospitals all degrees of departures from normal states, from slightest temporary confusion of thought to deep coma. We should study cases of departure from normal mental state regardless of whether or not they are cases of insanity ordinarily so-called, *e.g.*, delirium in acute non-cerebral cases.

Finally, with a very just appreciation of the student mind, the committee recommends that the psychological aspects of ill-health should be referred to both in the written, clinical and oral parts of the final qualifying examinations.

Up to a point, one would like to see psychiatry made less of a specialty and introduced as often as possible in the course of the student's education. In this country, where specialism has not reached the degree of insulation that it has reached elsewhere, it should be within the scope of the teachers of general medicine not only to diagnose functional disabilities by exclusion, but to elucidate the emotional basis of symptoms, to recognize the transference of affect from the nuclear complex to the trivial, and to see through the neurotic's morbid ways of evading responsibility. Inquiries about worries and anxieties should be as much a matter of routine as the use of the ophthalmoscope. Only, let there be no misunderstanding on this point, the psychological approach must be made not just by a question or two hastily fired at the patient at the bedside or the open ward, but in leisurely seclusion. Only privately may the patient's confidence be gained and memories be revived in significant order in the patient's mind. This does not mean that every physician should practise psychoanalysis, but that a few therapeutic conversations carried out with some degree of privacy should not be looked upon as a special task for a psychiatrist. May the time soon come when the general physician will feel no more diffident about medical psychology than he does now about cardiology, even though he has colleagues of both specialties at his hospital! The mental symptoms or complications of an acute fever, of subacute combined degeneration of the cord, of neurosyphilis, of cerebral tumour, of cardiac disease, or of pulmonary tuberculosis, all have their counterparts in the insanities and provide valuable teaching material.

It seems likely that in the near future the University of Sydney and the Royal Prince Alfred Hospital will have the advantage of a special pavilion with some twenty-five beds for mental patients who cannot be treated in the general wards. Apart from the greater variety of readily accessible teaching material for both students and nurses, it is hardly necessary to point out that this close association will be of the greatest value in reducing the isolation of psychiatry by bringing home to the student the unity of mind and body.

Some observations made by Professor Edwin Bramwell[18] in Melbourne in 1935, and recently published, must not be allowed to go unchallenged. Using a simile which comes readily to the lips of a Scot, Professor Bramwell speaks of the psychiatrist sallying forth from behind the walls of his institutions and staking out a claim in the treatment of the neuroses. While he credits the psychiatrist with expert knowledge in the diagnosis and treatment of the psychoses in the early stages, he goes on to say: "he has no easy task before him if he is to establish his position as the authority on the neuroses to whom the training of the undergraduates should be entrusted". He gives as his reasons for this extraordinary statement the stigma attached to mental diseases and the psychiatrist's alleged lack of opportunity of coming across neuroses in their early stages. One must admit that the sallies of the psychiatrist into the field of early diagnosis and treatment are comparatively recent, and that in this respect he has lagged behind the tuberculosis officer, the venereologist and other specialists, who are shifting their attention from the confirmed and chronic to the early and remediable phases of disease. Further, Professor Bramwell, while stating that the psychiatrist claims to have applied himself particularly to the study of academic psychology and mental symptom-

atology, omits to mention that the shortcomings of academic psychology have long been recognized by his psychiatrist colleagues, and that the live psychology of McDougall, for example, is generally held to be of far greater value in practice. Possibly the Edinburgh Diploma in Psychiatry has not kept pace with the requirements of other examining bodies. To crown these destructive criticisms of the unfortunate psychiatrist, Professor Bramwell suggests that the undergraduate should receive six to twelve lectures from a neurologist "who is interested in the neuroses and the personal side of medicine". On what grounds does the neurologist claim to be more interested in the neuroses and in the personal side of medicine than the psychiatrist, or indeed than any physician with a broad outlook on life and a mind not unduly preoccupied with mere organs? While the neurologist's special work qualifies him to diagnose between "organic" and "functional" and to apply a variety of methods, all depending on suggestion, for the removal of such disabilities as functional paralysis, abnormal gaits and disturbances of sensation, I am not persuaded that the neurologist is specially equipped to deal with "suprasegmental integrations", that is, with mind. May we remind the neurologist that disordered emotions may be expressed in other systems than the purely spinal, for example, cardio-vascular, intestinal or genito-urinary. Further, I would suggest that the misconception which is fostered in some quarters, that the psychiatrist, like his predecessor, the alienist, deals only with "insanity" and not with "nerves", is not entirely disinterested.

Psychotherapy.

The fascinating story of the development of psychotherapy has been told at length by Janet, and I shall refer only to one or two aspects of more recent interest, particularly the establishment of various schools. You will remember that Josef Breuer was impressed by the emotional display exhibited by some of his patients in the recall of certain memories, a phenomenon to which he gave the name abreaction (1882). Sigmund Freud, who had attended Charcot's clinic, joined him a little later and they published together the "Studies of Hysteria" (1895), with further observations on abreaction and the cleansing of the mind of unwelcome memories (catharsis). The association was severed later, and Freud went on evolving his analytical method alone and formulating his conceptions of repression and the unconscious. I often wonder if the teachings of the Freudian school would have made such an appeal if Freud and his followers had not maintained so exclusive an attitude and such a discipline within their ranks, savouring almost of a religious cult. Would psychoanalysis have aroused such a degree of controversy if more simple language had been employed? Have his followers forgotten that Freud[14] once wrote: "The edifice of psycho-analytic doctrine which we have erected is in reality but a superstructure, which will have to be set on its organic foundation at some time or other, but this foundation is still unknown to us." One can only regret the complacent detachment from other lines of investigation and the slavish subservience to the master which characterize professed or "official" Freudians.

Jung seceded from the Freudian faction in 1912, ostensibly because of disagreement with what he regarded as the extreme emphasis placed on "sex". Jung gives a far wider connotation to the driving forces of human nature. He maintains that when present obstructions to self-expression and achievement become too great, the individual regresses to a type of behaviour more in keeping with an earlier phase in individual or even in racial development. But Jung was not the first to tell us of regression. Did not Shakespeare speak of "second childishness"? Hughlings Jackson pointed to a "reduction towards a general personality, or towards what is common to the race" in deep dissolution of mental functions.

The concept of regression is valuable and covers equally the emotional outbursts of the adult who is "put out" over something, the still less controlled and less appropriate emotional reactions of neurotics (or are these manifestations of persistent infantilism?), the living in the past and recapitulation of memories selected in the light of the prevailing emotional tone in melancholia, the spread of the delusional scheme to the events of childhood in paranoia, the living in the past of senile dementia. Of Jung's introvert and extravert types we may say that these concepts add to our understanding of the few cases which fit into one or other category. But unfortunately "pure" cases are in the minority. A similar comment may be made with regard to Kretschmer's correlation between physical habitus and psychological types (pyknic, asthenic, athletic and dysplastic). Jung's subdivisions of intuitives, sensitives *et cetera* seem even less easy to apply clinically.

The third member of the analytical trio is, of course, Alfred Adler, who deserted Freud at almost the same time as Jung. Adler's viewpoint is broader than either Freud's or Jung's, and makes a greater appeal to common sense. Very properly the Adlerian inquires how the patient faces up to his social contacts, his sexual life and his occupation. "What", asks Adler, "is the patient aiming for; what is his 'style' of life?" Attention is paid by the Adlerian school to the earliest memories recalled in the state of passive introspection which is a necessary part of the analytical procedure. No doubt dominant interests determine what is recalled, whether the memory is real or fictitious. Then we have "organ inferiority", the tendency to make use of physical disabilities in order to avoid responsibility.

Here in Australia we have been spared any great concern over rival theories. No doubt the psychologists and others outside the medical profession are more interested in claims of the different schools of psychopathology. Within the profession one or two profess allegiance to some particular body of doctrine. But are we any less proficient by adopting a less stereotyped and more open-minded approach to the problems of nervous illness? I

presume that to most of us the many-sided approach makes the greatest appeal. We are less concerned with disentangling "body" and "mind" than with restoring whatever imbalance comes before our notice, seeking by whatever means are at hand to restore body and mind to the greatest possible efficiency. If one might point to any outstanding advance in psychiatry during the last two or three decades, I would emphasize the steadily increasing recognition of "personality in action", with symptoms as indications of failure on the part of individual organs, maybe, or of the organism as a whole. In all departments of medicine the object is to understand the meaning of symptoms in order that treatment may be less empirical and more rational. The psychiatrist is concerned more particularly with his patient's failure to meet life's demands, and has constantly to assess the relative importance of impaired physique and insufficient mental aptitudes on the one hand, and on the other physical and mental stresses to which his patient has been subjected—the dynamic concept of mental disorder. In the investigation which is a necessary preliminary to rational treatment, the patient's own attitude towards his illness and his circumstances may prove to be of less importance than other people's attitude towards him. Hence the growth of social service in psychiatry, not so much with the object of bettering the patient's physical environment as of assisting him in difficulties of a more psychological order. The team method in psychiatry is seen in its fullest and most successful development in the child guidance clinic, in which the psychologist reports on the child's intellectual development and special abilities in the form of literary or mechanical aptitudes, and advises regarding educational problems; the social worker deals more particularly with the home, while the psychiatrist, with his general and special medical knowledge, investigates the physical and emotional aspects, correlates the various investigations and directs the treatment. In the impressionable years of childhood the environment is most important both for evil and for good, in nosogeny and in treatment.

In this bare outline I have suggested the philosophy which, I believe, underlies the methods generally adopted by psychiatrists.

There is a widespread misconception that a psychiatrist is necessarily a psychoanalyst. It is certainly true that the examination of a person suffering from any disease of necessity involves an "analysis" of the patient's symptoms. It is also true that an examination from a psychiatric point of view covers an analysis of the patient's mental processes and usually includes the tracing back of symptoms to their origin, particularly with regard to special emotional associations. It is also within the ambit of psychiatry to use special methods for recalling memories and for tracing associations, such as association tests, free association, and revival of memories under hypnosis. But it is only fair to the Freudians as well as to ourselves to point out that the use of mental analysis does not involve adherence to psychoanalytical (Freudian) or any other special doctrine. There is no doubt that the discussion of symptoms and their origin affords relief to some patients ("confession is good for the soul") and that the explanation of how an emotional reaction may take place gives the patient an intellectual appreciation of his condition which has therapeutic value in certain cases. There is equally little doubt on the other hand that in another class of personality any sort of intensive individual investigation merely panders to the patient's egotism and accentuates a natural tendency to introspection. The melancholic, too, is no better for being encouraged to trace back his sense of guilt and his other imagined shortcomings. The heavy burden of the war neuroses gave a great stimulus to the interest of the medical profession in their causation and treatment, and striking results were obtained in the relief of symptoms, although it must be admitted that the results of psychotherapy as regards the restoration of fighting efficiency were disappointing. While it is difficult to assess the value of psychotherapy in civilian practice, and well nigh impossible to distinguish between the effects of different varieties of treatment, such as suggestion, analysis or reeducation, and physical methods, such as sedatives and correction of physical ill-health, there is no doubt that many patients, particularly those with a large emotional component, are prevented by appropriate and early treatment from proceeding to a state of utter physical and mental exhaustion. One need not be unduly discouraged by the numbers of "chronics" who throng our out-patient departments. Nor is psychiatry the only specialty with a long queue of incurables. It remains to be seen how far the correction of both physical and temperamental disorders and undesirable habits during the formative and impressionable years of childhood will result in a higher standard of physical and mental health.

Mental Deficiency.

The past twenty-five years have seen a steady increase in our knowledge of the macroscopic and microscopic anatomy of arrested mental development, to which Shaw Bolton and Berry have made notable contributions. On the clinical side ascertainment and assessment have been placed on a more scientific basis with the help of mental tests, most of which are modifications of those introduced by Binet and Simon in 1908. A survey carried out by a special committee in England and Wales[15] reported in 1929 an incidence of eight mental defectives per thousand of the general population, with a ratio of five idiots, twenty imbeciles and seventy-five feeble-minded per hundred aments. Moreover, the committee is of the opinion that the higher figure ascertained since a royal commission reported 4·2 defectives per thousand of the general population in 1904 is due to a real increase and not merely to changed standards of diagnosis. While institutional care will always be necessary for defectives of the

lower grades, especially for those with gross physical disabilities and confirmed antisocial tendencies, there is a widespread opinion that more might be done in the way of training the less severely handicapped in special classes and schools. The 1929 committee rightly emphasizes the importance of suitable training at an early age as a potent factor in socializing the higher grade defective and preventing him from drifting into the ranks of the unemployable and the criminal. In England and elsewhere much has been achieved through organized occupation (occupational therapy) and recreation, both in and out of institutions, in the way of making the defective happier and of increasing his economic value. Australia has considerable leeway to make up in this respect. Closely related to mental deficiency is the question of eugenic control. In various quarters one hears the demand for the introduction of summary measures for the control of transmissible diseases and defects, and an influential committee in England has recently reported in favour of legalizing voluntary sterilization for eugenic purposes. Recent research, however, does not offer any hope of a useful reduction in the incidence of mental disorder or defect by social control (segregation or sterilization). It appears that of mental defectives of all grades only 5% have defective parents. With regard to manic-depressives, it appears that a third of the offspring are liable to manifest a definite mental abnormality at some time in their lives. But defects may be latent for one or two generations and become manifest only in the offspring of parents carrying complementary genes.

Until we know a great deal more about the carriers of transmissible mental abnormalities, compulsory measures of control would hardly seem to be justified. In the meantime some good may be achieved by educating the general public to a higher standard and more rigid conscience concerning physical and mental health. In conclusion, the awakening and moulding of public opinion in this and other matters concerning mental welfare is being attempted through the various mental hygiene organizations, the first of which was established in New Haven, Connecticut, in 1908, followed by the National Committee of the United States in 1909, since when similar organizations have been found in all the leading countries, including England (1923), Victoria (1930) and New South Wales (1932).

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THE TREATMENT OF PINK DISEASE.

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THE discussion on pink disease which took place at the annual meeting of the British Medical Association held in Melbourne a few months ago and recently published in *The British Medical Journal*(1) has drawn the attention of medical men to the prevalence of this disease among young children in Australia. Indeed, it has been called the "Australian disease"; for although now known to be sporadically present in most parts of the civilized world, the majority of reported cases have come from Australia, and our present knowledge of this obscure disease is chiefly due to the writings of Swift, of Adelaide, and Wood, of Melbourne.

The writer is particularly interested in this disease, as he had the privilege of reading Swift's(2) paper on erythrœdema, as he called it, before the members of the Children's Section of the Australasian Medical Congress held in Auckland in February, 1914. From this meeting Swift was unfortunately absent, but his paper was considered so important a document that it was read in his absence. He described the symptoms present in a number of cases he had observed in South Australia so graphically and in such detail that during the last twenty-one years little can be added to our knowledge of the symptomatology of this complaint.

In 1920, Jeffreys Wood,(3) of Melbourne, read a paper at the Brisbane meeting of the Australasian Medical Congress, as in the six-year interval between the Auckland meeting and the Brisbane meeting he had collected ninety-one cases. At this meeting the disease was thoroughly discussed and various suggestions were made by Wood and others as to its treatment.

During the last fifteen years many suggestions have been made with the object of discovering a specific form of treatment for this intractable disease. Among these I may mention that of Wyllie and Stern,(4) who advised treatment with liver extract, Braithwaite,(5) who recommended treatment in a room with red windows so as to exclude the ultra-violet rays of the sun, and the writer,(6) (7) who advocated the treatment of patients by artificial sunlight.

The majority of physicians who read in *The British Medical Journal* dated September 21, 1935, the very able *résumé* of this disease by Wood and Wood when opening the discussion at the Melbourne meeting,

must have experienced a sense of disappointment at the statement contained therein that up to the present no specific treatment had been discovered. Various palliatives were recommended with the object of relieving the distressing symptoms common to all cases, such as insomnia, photophobia, miliaria, stomatitis, and in addition to general hygienic measures, it was stated that "carefully graded sun baths were of decided benefit".

Wood and Wood, after observing a large number of cases, expressed the opinion that pink disease was a self-limiting affection to a certain degree in that the condition of the patient in the majority of cases began to improve after symptoms had been in evidence for about three months. They were of opinion that so-called cures were due to this natural tendency to recovery. Whether such is the case remains to be proved, and in the writer's opinion is very doubtful, as most observers are agreed that cases are not unknown in which the disease has persisted in an active form for nine months, or even longer, and cases of from three to six months' duration are by no means uncommon, as can be seen by a study of the cases submitted in this and the writer's previous article.

It is quite evident therefore that the physician of today, provided that he accepts as final the opinion of Wood and Wood as to the prognosis and treatment of a case of pink disease, can offer little comfort to the friends of his patient as to the chance of a speedy recovery. Especially is this true as the palliatives he prescribes will have no great effect in relieving the distressing symptoms of the disease. For example, sedatives and hypnotics of all kinds have been found to be quite ineffective for the insomnia which is always present; the wailing cry which persists over the greater part of the night disturbs the rest of the inmates of the house, and when continued for weeks or months, often converts them into physical wrecks. Is it to be wondered at, therefore, that in their search for relief from these trying conditions the parents and friends of the little patient try doctor after doctor, and are induced to try unorthodox healers such as chiropractors or medical herbalists?

In order to treat pink disease in a scientific manner, we require to have much more data as regards its causation than are at present available. Indeed, we know surprisingly little concerning the origin of this mysterious disease, and what we do know is chiefly of a negative character. For instance, we may safely assume that it is not due to a defective diet, or at any rate to a deficiency of any of the vitamins at present known. The disease, in the writer's opinion, is uncommon among the poor and ignorant class of the community, and in the great majority of cases seen by him the previous diet had been quite satisfactory in every respect. There also appears to be no reason to believe that it is caused either by a temporary endocrine deficiency or excess of secretion, as none of the ductless glands appear to be implicated, with the possible exception of the thymus, the functions of which are little known. It is not infectious or contagious, and therefore we may presume that should it be shown later (which appears to be not unlikely) that this disease is due to a microorganism, at any rate it is of a variety not readily transmitted from one patient to another.

So great an interest has been aroused among pædiatricians all over the world as to the cause of this complaint, that sooner or later it is sure to be discovered. In the meanwhile, handicapped as we are in our search for a specific cure, it will be remembered that in the history of medicine there are many instances in which an effective treatment has been found for a complaint before its ætiology was known. Common examples of this are rickets in children, and pernicious anæmia in adults. More than ten years ago the writer of this article tried the effects of the mercury vapour lamp, which was then greatly in vogue for the treatment of numerous conditions, in a case of pink disease, and somewhat to his surprise, all the symptoms of his patient disappeared after a few exposures to the lamp. Two other patients who presented themselves shortly after were treated on the same lines, with equally happy results.

Feeling now confident that treatment by artificial sunlight was of considerable value in the treatment of pink disease, the writer reported these cases in the *Archives of Pediatrics*, a New York journal, under the heading of "The Treatment of Acrodynia", that being the name given to the disease by Bilderback who had rediscovered it in America. In December, 1930, the writer published a report of seventeen cases of pink disease treated by artificial sunlight in the *Archives of Disease in Childhood*.[7]

The results obtained appeared to be excellent in all these cases, with one exception. This case was reported in full, and although there was complete recovery in the end, the duration of the disease was protracted owing to two relapses.

Very little interest appeared to be aroused by the publication of these two papers, either in America or in England, where they appeared, and up to the present time few references have been made in modern literature to this form of treatment, with one notable exception. Leonard Parsons, while denying the specificity of this or any treatment, states that "ultra-violet radiation has proved to be a valuable remedy in the general treatment of the disease and aids in producing sleep".

Although previously somewhat discouraged by lack of appreciation of his work in connexion with the treatment of the disease, the writer has gratefully taken to heart the suggestion recently made to him in a letter from Dr. A. Jeffreys Wood that he should write another paper and forward it to THE MEDICAL JOURNAL OF AUSTRALIA. He has therefore decided to publish the history of nineteen new cases and to describe in detail for the first time the technique which he employs.

Lamp Treatment.

The patient is entirely undressed and placed, lying on a cotton towel, on a high couch. No pillow is employed. He is thoroughly warmed with a carbon filament (radiant heat) lamp suspended above him at a distance of eighteen inches from his body. If such a lamp is not available, an electric radiator on a table about eighteen inches above and to the side

TABLE I.

Case.	Age in Months.	Sex.	Length of Previous Illness in Weeks.	Number of Treatments Before Recovery.	Total Duration of Disease in Weeks.	Remarks.
18	14	Male.	4	8	9	Hands and feet did not show characteristic appearance until six weeks after commencement of symptoms.
19	12	Female.	4	9	8	Typical appearance of hands and feet four weeks after commencement of illness.
20	10	Female.	5	8	9	Appearance of hands and feet never typical, but became slightly reddened two weeks before recovery.
21	10	Female.	6	9	10	Illness dated from a fall on the head. There was photophobia a week later.
22	18	Female.	8	11	17	Troubled with cough, and was very constipated; recovery not so rapid as usual, but quite complete.
23	12	Female.	13	10	18	After the last treatment there was still some photophobia, which lasted for three weeks longer.
24	18	Female.	16	12	24	Almost well after ten treatments, but still had slight miliaria, and so two more treatments given.
25	16	Male.	5	7	8	Typical appearance of hands and feet five weeks after commencement of illness.
26	18	Male.	17	7	22	This patient started to improve after only two treatments.
27	19	Female.	12	10	24	Definite improvement after five treatments.
28	12	Female.	8	4	12	Had been in hospital for four weeks and doing badly; cleared up rapidly when removed home and with light treatment used.
29	13	Female.	3	4	5	Commenced with photophobia and insomnia. Perfectly well two weeks after treatment.
30	13	Female.	2	8	5	Developed furuncles in different parts of body and a large abscess in buttock. A sister was treated for pink disease five years previously.
31	17	Male.	10	11	16	Developed diarrhœa at one stage; very incompetent mother, who failed to carry out instructions.
32	19	Male.	4	7	8	An early but typical case, rapid improvement.
33	19	Female.	10	4	7	Marked improvement after the first treatment.
34	15	Male.	2	11	14	Early improvement and complicated later by attack of diarrhœa and vomiting.
35	12½	Male.	4	7	7½	Rapid improvement; but developed a severe cold after three treatments.
36	17	Female.	36	7	40	A case of long duration which rapidly improved under treatment.

of the patient may be used. When the heat lamp is switched on the mercury vapour lamp is lighted and the visor closed for five minutes, so that the lamp gets thoroughly warmed up. The distance between the quartz tube and the patient is carefully measured.

The following table gives the time of exposure and the distance of the patient from the lamp in an average case. All patients are treated twice a week.

Smoked glass goggles must be worn by doctor and nurse, and the patient's eyes must be protected against

TABLE II.

Treatment.	Distance (in Centimetres).	Time (in Minutes).
1st	100	2
2nd	90	3
3rd	80	4
4th	70	5
5th	60	6
6th	60	7
7th	60	8
8th	60	9
9th	60	10
10th	60	10

the ultra-violet rays with a thin pad of gauze. The patient must be turned from the recumbent to the prone position and back again at least every minute. The time of exposure employed will depend on the length of time the quartz burner has been used; if it is quite new, a shorter time than shown in the above table is advisable. If erythema occurs and is visible at the treatment following that by which it was produced, the affected part should be covered with gauze during exposure to the lamp and the length of time of treatment reduced. The radiant heat is continued during treatment with the mercury vapour lamp and for five to fifteen minutes afterwards.[1]

Apart from lamp treatment, very little requires to be done to insure recovery, and such palliative measures as hypnotics, skin applications or tonics are as a rule quite unnecessary.

As Wood pointed out many years ago, the patient suffering from this complaint is a very sick child, and in consequence should be handled and amused as little as possible. He should be kept in his cot in a cool, well ventilated room, or on a shady veranda, and should be allowed to lie in his favourite position, namely on his stomach with his head burrowed in the pillow. He should be bathed twice daily in tepid water, and after drying, his skin may be dusted with a powder composed of boric acid one part, zinc oxide two parts, and *Pulvis Amyli* three parts. His clothing should be as light as possible and silk or cotton underclothing should be worn next to his skin. Food of a nature suitable for his age should be given, but no attempt made to force him to take more than his appetite demands. He should never be sent to a hospital or nursing home if it can be avoided. The reason for this is obvious, when we remember that according to Wood and Wood, the mortality rate of this disease in two of the largest children's hospitals in Australia was 30%, whereas of those treated in their own homes only 2% succumbed. It is well for the general practitioner to bear in mind that there is a grave danger in sending infants and young children who are suffering from any chronic complaint, whether of a medical or surgical nature, as in-patients to a hospital, since after a few weeks' residence there they are liable to develop some form of cross infection which often proves fatal. If hospital treatment should be deemed necessary for a patient with pink disease, he should be treated whenever possible as an out-patient. It is strongly recommended that the lamp treatment should be personally carried out by the physician in charge, and not entrusted to nurses, masseurs or light specialists.

No treatment is required for the muscular wasting and weakness that are present to a greater or lesser degree in all cases. Vigorous massage is inadvisable as it increases the general discomfort of the patient.

In the writer's opinion the myasthenia is not due to a neuritis as stated by Feer,[9] Thursfield,[10] Wyllie and Stern[4] and others, but is merely a part of the general wasting of the tissues which occurs in this disease and is increased by disuse. Early in the history of a case, owing to general weakness such as occurs in all ailments in childhood, the patient goes "off his feet", and at a later stage refuses to sit up or hold his head erect for any lengthy period of time. The amount of muscular atrophy largely depends on the duration of the disease, and in consequence recovery is slow when the patient has been ill for several months, but comparatively rapid in cases in which there have been only a few weeks' illness. As far as the writer has seen, paralysis of any group of muscles is quite unknown. In fatal cases degeneration of the peripheral nerves has been observed; but may not this be due to the intercurrent disease which caused the patient's death?

The only internal medications that the writer has found it necessary to prescribe during the course of treatment are a mild aperient such as milk of magnesia for constipation and a suitable mixture for the diarrhœa which is apt to occur during the summer months of the year. Some patients have a troublesome cough, and for this a sedative cough mixture was ordered, but to the majority of his patients no medicine was given.

Discussion.

It is usual when propounding a new treatment for a disease to advance some argument which strives to explain in what manner the measures advocated are supposed to react on the disease in question, and influence it towards recovery. When treating his first case, the writer was of opinion that pink disease was due to a low-grade infection. He had been most favourably influenced by the work of Gauvain[11] on the treatment of tuberculosis by light rays, and believed his claim that the use of sun baths raised the metabolic rate in the sick child and reduced infectivity. The former view is now no longer held, and the latter has not been definitely proved. The writer can therefore advance no theory as to why artificial light treatment is of such value in pink disease. He is not even sure whether this benefit is due to the short ultra-violet rays of the solar spectrum or to the longer infra-red rays, or to a combination of these, for in all his cases he has utilized the rays of lamps which are rich in both.

If pink disease, like rickets, was due to a deficiency of ultra-violet rays during the long winter months, such as is known to occur in Europe and America, we should expect it to be much more commonly seen in these countries than in Australia, which is very far from being the case.

Braithwaite is of opinion that pink disease is due to "an abnormal reaction to sunlight in an infected child". He states that only four of his twenty-seven

[1] It is the rule, with very few exceptions, for the patient to register a slight but steady loss in weight during the whole course of treatment. This can be entirely disregarded, as it cannot be considered an unfavourable sign.

cases occurred during the winter months. That this disease has no seasonal incidence in New Zealand the writer is convinced; for shortly after Braithwaite's paper appeared in print, he made an analysis of twenty-eight cases, and as is shown in Table III, this disease may originate at any time of the year.

Table III.

Seasonal Incidence of Swift's Disease.

Record of 28 cases, 15 females and 13 males, taken from commencement of illness.

Season.	Month.	Number of Cases.	Total.
Summer	December ..	3	8
	January ..	4	
	February ..	1	
Autumn	March	0	6
	April	1	
	May	5	
Winter	June	4	6
	July	0	
	August ..	2	
Spring	September ..	2	8
	October ..	3	
	November ..	3	

Braithwaite claims that he cured some of his patients by excluding from their living rooms the ultra-violet rays present in sunlight by means of red windows; whereas the writer claims that he cures all his by lamp treatment, which is rich in these rays. Which of us, or whether either of us is right, posterity can alone decide.

Unlike pellagra, to which pink disease has a slight superficial resemblance, the natural rays from the sun have no injurious effect on the patient. Indeed Wood and Wood, as previously stated, recommend sun baths as a form of treatment for the disease. The writer has had no personal experience with this form of treatment, but is of opinion that it should prove beneficial if entrusted to thoroughly experienced hands.

Gauvain has taught us that in the treatment of tuberculosis by sun baths great care must be exercised, and the effect of the sun carefully measured by a specially trained nurse; otherwise much more harm than good will be done to the patient. For this reason, mothers of patients cannot be trusted with this form of treatment until the patient is well on his way to recovery.

Summary.

As the result of treatment of thirty-six consecutive cases of pink disease, the writer is of opinion:

1. That all patients with this disease, whether mild or severe, provided that they are not admitted to hospital, can be cured in a few weeks.
2. No special diet is required.
3. Internal or external forms of treatment are unnecessary, except for complications such as diarrhœa or bronchitis.
4. Massage and faradic or galvanic electrical treatment are contraindicated.

References.

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(2) H. Swift: "Erythrœdema", Transactions of the Australasian Medical Congress, Tenth Session, Auckland, 1914, page 547.
(3) A. J. Wood: "Erythrœdema or the 'Pink Disease'", Transactions of the Australasian Medical Congress, Eleventh Session, Brisbane, 1920, page 444.
(4) W. G. Wyllie and R. O. Stern: "Pink Disease: Its Morbid Anatomy, with Note on Treatment", *Archives of Disease in Childhood*, Volume VI, June, 1931, page 137.
(5) J. V. Braithwaite: "On Ætiology and Treatment of Pink Disease", *Archives of Disease in Childhood*, Volume VIII, February, 1933, page 1.
(6) G. B. Sweet: *Archives of Pediatrics*, Volume XLII, 1925, page 543.
(7) G. B. Sweet: "Treatment of Swift's Disease (Erythrœdema)", *Archives of Disease in Childhood*, Volume V, December, 1930, page 405.
(8) L. G. Parsons: "Diseases of Infancy and Childhood" (Parsons and Barling), page 363.
(9) E. Feer: *Jahrbuch für Kinderheilkunde*, Volume CVIII, 1925, page 267.
(10) J. H. Thursfield and D. P. Paterson: *British Journal of Children's Diseases*, Volume XIX, 1932, page 27.
(11) Sir Henry Gauvain: "General Light Baths in Surgical Tuberculosis", *British Journal of Physical Medicine*, Volume VIII, June, 1933, page 19.

Appendix.

Table IV, containing a summary of cases previously treated, appeared in the *Archives of Disease in Childhood* of December, 1930.

Table IV.

Summary of Cases Treated.

Case.	Age (Months).	Length of Previous Illness.	Number of Treatments Before Recovery.	Remarks.
1	9½	2½ months.	10	Improvement after first treatment.
2	16	2½ months.	10	Almost well after six exposures.
3	17	1 month.	9	Commenced with marked photophobia. Rash two weeks later.
4	4½	4 weeks.	10	Early and rapid improvement.
5	11½	1 month.	9	Gained weight during treatment, which is unusual.
6	17	9 months.	10	Emaciated; weight thirteen pounds. Ulcerated buttocks, photophobia and diarrhœa. Steady progress with treatment.
7	10	2 weeks.	11	Response to treatment not so rapid, possibly because it was an early case.
8	10	3 weeks.	9	Quite well after seven exposures.
9	6	1 week.	8	Improvement after first treatment. Slept three hours the first night. Hands and feet normal after seven treatments.
10	14	5 months.	24	Treatments interrupted. Case reported in full.
11	18	3 weeks.	13	Had ulcerative stomatitis and lost four teeth, prolapse of rectum; recovered.
12	23	5 weeks.	6	Was at first considered to be poliomyelitis. Typical signs two weeks later. Rapid improvement.
13	21	7 months.	7	After second treatment slept at night for first time for months. After that, improvement rapid.
14	17	5½ months.	7	At end of treatment, quite well except that hands and feet were still rather red.
15	12	2 months.	5	Commenced with photophobia and lachrymation, rapidly lost weight, and had insomnia, rash and sweating. Improvement after first treatment.
16	12	4 weeks.	7	A mild case, easily cured.
17	17	8 months.	7	A long history. Early rapid improvement with treatment.

Reports of Cases.

CHORIONEPITHELIOMA.

By C. FIRTH PETTINGER, M.B., Ch.M. (Sydney),
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ON December 11, 1935, at about 9 p.m., I was called to see a young married woman, a *nullipara*, aged twenty-two years, who gave the following history.

During the afternoon she had been swimming, and after leaving the water she experienced pains in the lower part of the abdomen, which she first attributed to "muscular cramp" from the exercise, and later, when they became more severe, to appendicitis. There was an accompanying sensation of nausea, but no vomiting.

She said that about three weeks previously she had experienced a similar attack, which lasted about an hour only and which was less severe.

She also complained of irregular menstruation for the preceding six weeks. She said that during that time she had, at intervals of about ten days, a blood-stained vaginal discharge which sometimes lasted for about two days. As her menses were usually somewhat irregular, she attached little importance to this. She said that about three weeks previously she had had a cough, which was not severe and which disappeared in a few days; while it was present she on one occasion had some blood-stained sputum.

On examination I found a well nourished, healthy-looking woman with moderate pain situated in the lower part of the abdomen. Below the umbilicus the abdominal muscles on both sides were on guard; tenderness to pressure was present in both iliac fossæ, but more pronounced on the left side. The patient's temperature was normal; her pulse rate was 85 per minute.

Examination disclosed no abnormality of the lungs or heart. There was no evidence of any urinary disorder.

Per vaginam I found the uterus normal in position, but enlarged to about the size of an eight weeks' gestation; the cervix was softer to touch than that of a non-pregnant woman, and the external os admitted the tip of one finger. There was considerable tenderness, with a sense of resistance in each vaginal fornix; the pouch of Douglas was filled with a soft boggy mass which extended into the left iliac fossa.

The provisional diagnoses were: (i) ectopic gestation, (ii) abortion with retained secundines causing pelvic abscess. It was thought that the diagnosis of ectopic gestation was more likely to be correct.

I transferred the patient to hospital for observation and probable abdominal section, which she asked me to delay pending the arrival of her husband, who was absent in the country.

About 9 a.m. the following morning, whilst I was operating in the same hospital, a message was sent into the theatre that the patient was having an attack of severe abdominal pain and was cold, collapsed, pale and pulseless. She was presenting the signs of severe internal hæmorrhage and was hurried into the operating theatre, the necessary skin preparation being done while she was being anæsthetized.

On opening the peritoneal cavity I found an alarming internal hæmorrhage, which was coming from a rupture of the anterior uterine wall near the fundus, and protruding through the rent was a mass of tissue resembling placenta. The uterus appeared to be that of an eight weeks' gestation. The tubes and ovaries appeared normal and the pouch of Douglas was filled with a mass of blood clot.

Considering the possibility of there having been some criminal interference, with attendant uterine infection, and considering the extent of the rent, the operation of choice appeared to be total hysterectomy. Owing to the gravity of the patient's condition the anæsthetist advised against this course, and the rent was repaired with strong catgut; the uterus was anchored to the anterior parietal peritoneum. The abdomen was closed in layers and the patient was returned to the ward, where, in spite of intravenous administration of saline solution and glucose, the use of "Carbogen" and the submammary administration of saline solution, she died in about twenty minutes.

Considering the case to be probably criminal, I notified the police and the *post mortem* examination was done by the coroner's order.

The findings were as follows. All the organs appeared normal and healthy, with the exception of the uterus and the lungs. Scattered throughout both lungs were many small, rounded, dark masses suggestive of newgrowth, and the interior of the uterus was filled by a mass, neoplastic in appearance, which had invaded the wall of the organ and caused its rupture. Clinically the condition was one of chorionepithelioma with metastasis to the lungs.

Following are two reports.

The Principal Microbiologist at the Board of Health, Sydney, writes: "Sections show the growth of the uterus to be a chorionepithelioma. The nodules in the lung are secondary growths."

Dr. Ethel Byrne, Honorary Pathologist at Newcastle Hospital, examined a portion of lung and her report is as follows: "Sections show lung alveoli filled with exudate and an extensive area of blood clot surrounded by masses of large clear cells resembling Langhans cells and more darkly staining masses of syncytial cells. The histological structure is that of chorionepithelioma."

I find two features of interest in this case:

1. It is extraordinary that a woman with such a grave condition could have failed to seek medical advice earlier, that she could look so well, and that within a few hours previous to her death she could have gone swimming.

2. *Post mortem* examinations are necessary. Failure to have performed one in this instance would have led to a most erroneous conclusion. In this case, when the abdomen was opened, the obvious impression was that there had been criminal interference and that some blunt instrument had been made to perforate a gravid uterus.

DOUBLE RENAL PELVES WITH SINGLE HYDRONEPHROSIS TREATED BY URETER LIGATION.

By I. DOUGLAS MILLER, M.B. (Sydney), F.R.C.S. (England), F.R.A.C.S.,
Honorary Assistant Surgeon, Saint Vincent's Hospital; Honorary Surgeon, Mater Misericordiæ Hospital, North Sydney.

THE following case of double renal pelvis and ureter is reported because in its treatment a rather experimental method of attack was exploited with notable success.

Miss V.M., aged seventeen years, was referred to me because of attacks of abdominal pain which she had experienced for about twelve months. The pain was situated in the right iliac fossa and radiated back into the loin. It occurred in repeated attacks every day, often with considerable severity. In between attacks of pain she had a constant feeling of discomfort in this region.

She was apt to be upset by food, feeling nauseated after meals. There was occasional frequency of micturition. Recently she had been compelled by this trouble to lead an almost invalid existence. Her appendix had been removed some years previously.

On examination there was marked tenderness on pressure over the right iliac fossa and costo-vertebral region, associated with a precipitate desire for micturition.

Intravenous pyelography had been performed and demonstrated a bilateral double pelvis and ureter. The double ureters appeared to join at the level of the brim of the pelvis, and no abnormality was detected.

I performed retrograde pyelography on the right side, and both ureters and pelves filled well. The distension brought out a definite early clubbing of the calyces of the upper pelvis. The lower appeared to be normal. Examination of the urine revealed no evidence of infection.

At operation I exposed the right kidney, hoping to find a double renal pedicle which would enable me to remove the upper half only of the kidney. There was, however, only one vascular pedicle, and the two pelves were grouped about it in such a way as to preclude the performance of a heminephrectomy. While under inspection the upper of the two ureters was seen to be covered by many small injected vessels, and it appeared to undergo almost writhing peristaltic movements. It was verified that the two ureters joined at the level of the brim of the pelvis. I decided to try the experiment of ligating the upper ureter in order to put this section of the kidney out of action. I therefore resected about 5·0 centimetres (two inches) of the ureter between silk ligatures.

The patient made an uneventful recovery, without experiencing any particular pain or discomfort. On getting up, she found that her symptoms had quite disappeared and she was well. A subsequent intravenous pyelogram showed that dye was being excreted only into the lower set of calyces.

Comment.

In this case the only alternative to the treatment carried out would have been nephrectomy, which one was naturally anxious to avoid. In view of the presence of sterile urine it appeared safe to apply the principle of ureter ligation in order to throw this portion of the kidney out of action. The cause of the hydronephrosis was not apparent, and may fall into the category of a neuro-muscular disturbance.

Reviews.

RAREFYING BONE CONDITIONS.

DR. E. S. J. KING'S monograph on "Localized Rarefying Conditions of Bone" is based on material submitted by the author for the Jacksonian Prize of the Royal College of Surgeons.[1] In addition to being a clear exposition of the author's views, it epitomizes a great volume of literature on these subjects.

The introductory section of the book deals with certain aspects of the anatomy, physiology and pathology of bone. In a chapter on resorption of bone, the process of vascular resorption or resorption by perforating canals is illustrated by excellent photomicrographs. Other types of bone resorption are more briefly considered. It is pointed out that all forms of resorption of bone are interrelated.

The greater part of the book deals with *osteochondritis juvenilis* and with post-traumatic rarefaction of bone. The former condition is met with in many epiphyses and is referred to under a variety of eponyms, such as Legg-Perthes's disease, Osgood-Schlatter's disease and Köhler's disease. These, which occur in growing portions of the bone of young people, are separated from the post-traumatic rarefactions which occur in the third, fourth and fifth decades.

A final section deals with rarefaction of articular surfaces associated with loose bodies in joints.

Owing probably to the fact that biopsy material is seldom obtained, illustrations are confined mainly to Röntgenograms.

Into a relatively small volume the author has succeeded in compressing a great deal of matter. The book will be found useful to those wishing to obtain a comprehensive view of these rarefying conditions of bone, which are seldom treated at any length in the ordinary text-book. The extensive bibliography makes the book a valuable work of reference.

[1] "Localized Rarefying Conditions of Bone as Exemplified by Legg-Perthes' Disease, Osgood-Schlatter's Disease, Kummell's Disease and Related Conditions", by E. S. J. King, M.D., D.Sc., M.S., F.R.C.S., F.R.A.C.S.; 1935. London: Edward Arnold and Company. Royal 8vo, pp. 412, with illustrations. Price: 35s. net.

INCOMPATIBILITY IN PRESCRIBING.

THE old formal prescription, with its several (or many) constituents, is becoming obsolete. In its place we order medicaments in tablet form or special preparations put up by the manufacturing firms. Accordingly incompatibles are not so often prescribed together. However, those who continue to write prescriptions as of yore will find in Thomas Stephenson's little book a very helpful guide in avoiding pitfalls of unsuspected incompatibles.[1] This book has now reached its fourth edition, and new preparations, both in and out of the Pharmacopœia, receive consideration. Chemical, physical (or pharmaceutical) and therapeutic incompatibilities all receive extensive consideration. The second part of the book consists of a dictionary of incompatibilities, being an alphabetical list of drugs with their doses, solubilities and incompatibilities. Explosive reactions are particularly well dealt with. The interaction of bismuth subnitrate and sodium bicarbonate may be so violent as to burst the containing bottle. Potassium chlorate with tincture of perchloride of iron and glycerin may explode, especially if the room temperature be elevated. Iodine forms explosive compounds with some essential oils. With ammonia it forms a very dangerous explosive—nitrogen iodide. Hydrogen peroxide should never be prescribed in combination. A bandage soaked in peroxide is reported to have ignited on drying. Many other examples are given. Altogether the book is a mine of valuable information, incompatibilities occurring in unsuspected places.

SURGICAL APPROACH.

THE surgical approach to bones, nerves and blood vessels is a subject which is in great part neglected in some text-books of surgery, and in others it is dismissed in but a few words. "The Anatomy of Surgical Approaches", by Professor A. C. Kellogg, deals with this neglected aspect of surgical anatomy and is useful in bridging the gap which exists between formal text-books of surgery on the one hand and of anatomy on the other.[2] The text includes a description of anatomical exercises, or "laboratory procedures" (for example, demonstration of the fascial spaces of the hand), which could very usefully be carried out by classes in operative surgery.

There are four parts, dealing respectively with the upper extremity, the head and neck, the thorax and abdomen, and the lower extremity. Each part is divided into several chapters and much useful information is given. The book may be recommended, but attention should be called to several inaccuracies.

In describing the ligation of the brachial artery, the author mentions the occasional posterior position of the median nerve, but does not refer to the important relationship of this with a high division of the brachial artery. In Figure III a left arm is drawn instead of a right, and in Figure V "Biceps" is a wrong label. In the treatment of felon it is directed that the periosteum should be lifted from the terminal phalanx by the knife—a procedure which is pathologically unnecessary and anatomically impossible. The omo-hyoid muscle is not mentioned in the approach to the phrenic nerve. The upper part of the popliteal artery is exposed from behind, whereas a medial approach is better. "Maximus" on page 126 should read "minimus". For exploration of the knee joint there is no mention of the medial approach of Timbrell Fischer.

[1] "Incompatibility in Prescriptions and How to Avoid It (with a Dictionary of Incompatibles)", by T. Stephenson, D.Sc., Ph.C., F.R.S.E., F.C.S.; Fourth Edition; 1935. Edinburgh: The Prescriber Offices. Demy 8vo, pp. 69.

[2] "The Anatomy of Surgical Approaches", by L. C. Kellogg, A.B., M.D.; 1934. London: Bailliere, Tindall and Cox. Crown 8vo, pp. 144, with illustrations. Price: 7s. net.

The Medical Journal of Australia

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THE HÆMOLYTIC STREPTOCOCCUS AND PUERPERAL INFECTION.

CONTRIBUTIONS likely to be of any definite value in elucidating the problem of puerperal sepsis are relatively few and far between. Too often the real issues are obscured by a mass of statistics, and constructive suggestions end in generalities and pious hopes. In spite of all the discoveries of workers in bacteriology and pathology, the maternal mortality rate continues to be high; this has been the theme of most writers on the subject. Since medical practitioners know this only too well, and since they also know, many of them in their own practices, that disaster may occur when there has been little or no obstetrical interference, there is some danger that a complacent attitude may be adopted and that the present death rate may be accepted as the irreducible minimum. As a result of their training, as well as of their observation, most medical practitioners pay far more attention to the results of carefully planned and properly controlled research than they do to argument or persuasive eloquence. Whether, therefore, they are inclined to be complacent or not about the present maternal mortality (we believe that the apprehensive far outnumber the complacent), readers of this journal will welcome a report on the source of puerperal infection due to hæmolytic streptococci that comes from the pen of Dr. Dora C. Colebrook.[1]

In 1930 the Medical Research Council gave its support to the establishment of a unit of research in puerperal sepsis at Queen Charlotte's Hospital, London, in the Bernhard Baron Memorial Research Laboratories; the Rockefeller Foundation and the Ministry of Health also gave financial assistance. Dr. Colebrook's report is described as one of a number of accounts of the work done in the unit. Be that as it may, and although in certain respects Dr. Colebrook's work merely confirms what is already known or suspected, her evidence is so convincing that if her findings are rightly applied, the number of puerperal infections due to the hæmolytic streptococcus will be reduced. The Medical Research Council, in the preface, writes: "The thoroughness with which this investigation has been carried out, the caution shown in drawing conclusions, and the faithful recording of her failures as well as her successes, gives to Dr. Colebrook's report a stamp of conclusiveness absent from much earlier work on this subject."

The primary object of Dr. Colebrook's work was really bacteriological: to determine whether the method of absorption of agglutinins could be relied on for the differentiation of definite and stable serological types among the hæmolytic streptococci giving rise to puerperal infection. She also wished to apply the technique in order to extend existing knowledge of the epidemiological importance of the respiratory tract strains isolated from patients and the contacts of patients suffering from the more severe forms of puerperal hæmolytic streptococcal infection. A third objective was to determine the number and frequency of appearance of the serological types described by Griffiths in 1935 among the strains isolated from a series of cases of definite infection. From these objects it will be evident that the report will be of most value to bacteriologists. In this short account, however, particular

[1] "The Source of Infection in Puerperal Fever due to Hæmolytic Streptococci", by Dora C. Colebrook; Medical Research Council of the Privy Council, Special Report Series, Number 205; 1935. London: His Majesty's Stationery Office: pp. 99. Price: 1s. 6d. net.

emphasis will be placed on the findings as they bear on the clinical aspect of the subject. From this point of view the results may be shortly stated under three headings. In the first place hæmolytic streptococci which are pathogenic for human beings may be differentiated from other hæmolytic streptococci by serological and biochemical tests. In the second place the organisms which cause puerperal fever are not to be found in the vagina at the beginning of labour. In the third place the most important sources of infecting organisms are the human respiratory tract and septic foci. Dr. Colebrook is at great pains to distinguish between the extragenital strains of organism isolated from the patient and the members of her household (the "familial" strains) and the strains carried by the patient's attendants (the "professional" strains). Both are important. Instances are recorded in which the patient was infected by her own extragenital strain of organism, and in which she was infected by strains from members of her household. The conclusion is justified that any source of hæmolytic streptococci which are pathogenic for human beings anywhere in her environment is a potential source of danger to the patient. Equally important is it that no person suffering from an acute infection of the respiratory tract should engage in obstetric work. Among other questions that arise is the advisability of allowing hospitals to deal with obstetric and with surgical cases under the same roof unless adequate provision can be made for complete separation of the nursing staffs of the two departments.

This short reference to Dr. Colebrook's report will, it is hoped, induce bacteriologists and obstetricians to study it. A report such as this should divert attention from statistics and generalities to the need for research.

Current Comment.

THE STUDY OF TUBERCULOSIS.

Despite all that is written in Australia about tuberculosis, and by this is meant chiefly pulmonary tuberculosis, we are making only slow headway in the battle against the disease. There is certainly an increasing interest on the part of members of the medical profession; there is also a considerable improvement in treatment, and public bodies, including governments, are somewhat more active. But what practising physician could give an account of the practical details of tuberculosis control as carried out over the whole of this Commonwealth? Probably none but a comparatively few officials in the service of public health departments have any idea of the intricacies of methods which vary from State to State. There is definite need for coordination and concerted effort in this country. First, it cannot be said that there is adequate sanatorium provision, nor are there enough hospital beds available for sufferers from pulmonary tuberculosis. It is very interesting to look through the remarkable tuberculosis survey of the United States of America recently published by the Council on Medical Education and Hospitals of the American Medical Association.[1] Figures are not of much value as isolated quotations, but it may be remarked that the cost of tuberculosis hospitalization in the United States of America is over seventy million dollars. Of nearly 70,000 patients treated, 7·5% were discharged as "arrested", 11·6% as "quiescent", 9·8% "apparently arrested", 30% "improved", 17·2% "unimproved" and 23·9% died. This agrees with other statistical inquiries and shows that about 60% of the patients attained a reasonably favourable result. But the cause of adequate treatment surely needs no laboured advocacy; more interesting are some other features of the report; for example, that which comments on the medical personnel of tuberculosis institutions. All will agree with the contention that the medical officers should be selected on the basis of training and experience, that superintendents and directors need to be chosen with special care, whether they devote the whole of their time to the work or part only. Most instructive is it also to look down the list of institutions and see how many are fully equipped for all classes of diagnostic and therapeutic work. The standard appears on the whole to be very high; a leading article published in the same journal claims that in general a commendatory opinion could be given of most of the institutions, though it points out the need for increasing vigilance on the part of both specialists and general practitioners. What proportion of sanatoria in Australia can be considered as adequately equipped for all branches of modern tuberculosis therapy?

So far we have dealt only with the institution as regards its equipment and its success in treating patients and preventing spread of the disease. But what of the research side of the problem? It is interesting to turn to a series of articles recently published by E. L. Opie, F. M. McPhedran, and P. Putnam, which summarize the findings in several extended statistical investigations into the problem of the incidence and spread of pulmonary tuberculosis.[2] The first of these papers describes the

[1] *The Journal of the American Medical Association*, December 7, 1935.
[2] *The American Journal of Hygiene*, November, 1935.

organization of an outpatient tuberculosis clinic for epidemiological investigation. Where a concerted plan is adopted the routine work of such a department may go on smoothly year after year until such a period of time is covered as will allow deductions to be made on the progress of so chronic a disease. The unit of investigated patients must not be the patient, it must be the family, and examination of all the contacts by physical, immunological and radiological tests must be thorough and repeated. In this way the authors have noted that one-half of the matrimonial partners of those with open tuberculosis of the lungs were infected after marriage. It appears that the subject of marital tuberculosis is not yet settled, nor is that of the method of the genesis of pulmonary disease in early adolescence, whether by endogenous or exogenous infection. These authors describe the spread of tuberculosis in families as occurring by a long-drawn-out epidemic by which the disease is slowly transmitted from an earlier to a later generation. They find that within the first five years of life the children of households in contact with persons suffering from open tuberculous lesions have acquired demonstrable infection. When the contact is with persons who have a closed lesion, as judged by the persistent failure to demonstrate tubercle bacilli in the sputum, the story is quite different, for the risk of such children being infected, even into adolescence, is only slightly greater than the risk of other young people unexposed to infection. One of the most important inquiries in this connexion is that concerning the fate of persons in contact with tuberculosis, that is, the problem of exogenous infection of both children and adults. The authors find that when exposure to infection occurred between birth and nine years of age, nearly 10% of those living twelve to fourteen years after exposure have acquired clinical tuberculosis; much the same figure is found with those first exposed after the age of fifteen, but it rises to 20% when first exposure occurs between ten and fourteen years of age. The child who first meets the tubercle bacillus at close quarters at the age of fifteen shows the so-called adult type of disease, and from this the authors deduce that this adult form of pulmonary tuberculosis may be acquired by contact. Further, they state that the adult type is not the continuance of tuberculosis of childhood, but an exogenous infection acquired in adolescence or adult life. That exogenous sources of infection are important even after adolescence can hardly be denied, but this statement can hardly be accepted as it stands. As a matter of fact statistical deductions must be made with the greatest caution; their interpretation demands an understanding of various factors, ranging from the immunological to the purely mathematical. We shall not attempt any analysis of the closely packed figures presented in these papers, but point out that they represent an earnest and valuable contribution made possible by the following of an ordered scheme in routine hospital and dispensary work.

The problem of pulmonary tuberculosis is peculiarly interesting in Australia in view of our favourable climate and standards of living; it concerns child life, adult life both in early years and middle-age, and is fraught with many difficulties in the industrial world. As yet our population is sparse, except in a few cities, and funds are scanty, but it is again a case of the fields being white already to harvest; the need is for harvesters.

CLUBBING OF THE FINGERS.

Clubbing of the fingers may be a simple condition involving the fingers alone; it may be associated with changes in the long bones. When the long bones are involved it has received the clumsy name, secondary hypertrophic pulmonary osteo-arthropathy. Von Bamberger, who first described the associated changes in the long bones, thought that the simple form and that associated with hypertrophic osteo-arthropathy were merely different stages of the same disease. In a recent interesting paper J. Thornwell Witherspoon describes hypertrophic osteo-arthropathy as "a disease, generally of secondary nature, characterized by a general and symmetrical hypertrophy of the distal phalanges and toes, with resulting clubbing (acropachy), frequently accompanied by enlargement of some of the other bones in the hands and feet or by hypertrophy of the bones of the forearms and legs, and in the late stages by involvement of the joints".[1] Witherspoon's paper is really concerned with the report of a congenital case of club fingers occurring in a negro. This man had had clubbed fingers and toes for as long as he could remember (he was forty-four years of age) and he was supposed to have been born with the condition. His father had the same condition, also supposed to be congenital. The literature contains records of congenital clubbed fingers in white persons; but Witherspoon thinks that his case is the first to be reported in a negro. Whether this is so matters not; that clubbed fingers can be present at birth complicates the discovery of the cause of the condition. It appears that in the congenital type there is little or no tendency for it to develop into the hypertrophic osteo-arthritic type. Witherspoon points out that there is overwhelming evidence that the condition is secondary to some visceral disease, usually pulmonary or cardiac, but that occasionally it has been reported as following a disease of abdominal viscera, a blood dyscrasia or involvement of the thyreoid. The generally accepted view is that clubbing is the result of altered flow of blood, defective oxidation or hyperæmia in the tissues of the extremities, whether produced mechanically by obstruction to venous return or as a result of a general lowering of the oxygen tension of the blood affecting parts of the body where normally the circulation is slow. This is a subject which will delight ingenious theorists.

[1] *Archives of Internal Medicine*, January, 1936.

Abstracts from Current Medical Literature.

MORBID ANATOMY.

Bilateral Cortical Necrosis of the Kidney in Pregnancy.

S. DE NAVASQUEZ (*The Journal of Pathology and Bacteriology*, November, 1935) has investigated bilateral cortical necrosis of the kidney. He has carried out histological investigations in twelve fatal cases and has used as controls kidneys from twelve pregnant women who died from other than renal causes. He finds that the primary change is a diffuse necrosis of the wall of the peripheral intralobular arteries and their terminal branches. The necrosis of the renal cortex is caused by the resulting ischæmia. He cannot accept as true thrombi the intravascular masses that are present in the majority of cases. The scantiness of fibrin formation and platelet deposition, the uniformly complete absence of organization and the only partial occlusion of the arterial lumen suggest that the so-called thrombi are only aggregated masses of blood cells resulting from stasis; this so-called thrombosis is therefore a terminal phenomenon. In support of this view the author shows that in two of his cases extensive necrosis was present without "thrombosis". This finding was also noted in a kidney taken from a patient who died of industrial dioxan (diethylene dioxide) poisoning. The author refers to observations which indicate that the intralobular arteries are particularly susceptible to various stimuli and also that vaso-paralysis alone will not cause stasis. In spite of the haziness of the "toxin" hypothesis, the author thinks that the available data are in favour of a "toxin" as an ætiological factor. Dioxan is the first substance of known chemical composition known to have caused the lesion characteristic of this condition. At the end of his article the author states that since the present investigation was completed he has succeeded in producing symmetrical cortical necrosis of the kidney in rabbits by means of bacterial toxins.

The Response to Œstrogenic Compounds.

HAROLD BURROWS (*The Journal of Pathology and Bacteriology*, November, 1935) has, by applying œstrogens to the skin of male mice, investigated the localization of the response to œstrogenic compounds in the organs of male mice. He finds that the specific action of œstrone and certain allied compounds is confined to organs which (i) in some way serve the purpose of reproduction, or (ii) are morphologically, though not otherwise, associated with reproduction, or (iii) are embryological representatives of the reproductive system. The epithelial changes induced by œstrogens pass through definite successive stages, namely, (*a*) arrest of function, (*b*) hyperplasia, (*c*) metaplasia with ultimate keratinization, (*d*) suppuration. Gradients of susceptibility to œstrogens are seen. Vestigial cysts, if present, are first affected, and next the coagulating glands, seminal vesicles and prostate, in that order. When the supply of œstrogen ceases, recovery in these organs takes place in the reverse order of their susceptibility. In the coagulating glands, seminal vesicles and prostate the metaplasia commences at definite foci, from which it spreads through the glands. Recovery on cessation of the supply of œstrogen takes place in the reverse order. Suppuration is a sequel to keratinizing metaplasia; it occurs most readily in those structures which are the slowest to undergo metaplasia, and least readily in those which respond earliest to œstrogenic compounds.

The Anæmia of Acute Leuchæmia.

R. H. JAFFÉ (*Archives of Pathology*, November, 1935) points out that one of the most characteristic symptoms of acute leuchæmia is the severe and rapidly progressing anæmia which is present in the subleuchæmic and aleuchæmic forms. This anæmia is generally attributed to the replacement of erythropoietic tissue by leuchæmic tissue. The author has previously described a hyperplasia of the erythropoietic tissue of the bone marrow and extramedullary foci of erythropoiesis in many cases of leuchæmia. He has also laid emphasis on the frequent occurrence of considerable hæmosiderosis, suggesting that excessive destruction of red blood cells, rather than lack of erythropoietic tissue, may account for the anæmia. In the present communication the author reports in detail five cases of acute leuchæmia, characterized by severe anæmia, in which there was striking evidence of blood destruction and a considerable disproportion between the severity of the anæmia and the extent of the leuchæmic changes. He suggests that an initial abnormal destruction of blood cells may be of significance in the pathogenesis of acute leuchæmia.

Amyloid Disease.

C. M. EKLUND AND H. A. REIMANN (*Archives of Pathology*, January, 1936), in discussing the ætiology of amyloid disease, describe some experiments in which repeated injections of sodium caseinate were given to rabbits over long periods. Soon after the commencement of each experiment each animal manifested hyperglobulinæmia, and this state persisted until the animal died. The total protein content of the blood was increased in the early period of the experiment, but became less and fell below the normal level late in the course of the condition, when evidence of renal amyloidosis and uræmia appeared. The authors conclude that their results lend support to the view that chronic hyperglobinæmia is an important factor in the ætiology of amyloidosis of the secondary type. They assume that during long periods of hyperglobulinæmia an attempt is made by cells apparently designed for the purpose to remove the excess of normal or abnormal globulin from the blood. If the amount is not too great or too persistent, the excess can be disposed of successfully. If, however, the cells become overwhelmed or exhausted, or if they cease to function owing to injury or disease, excess amounts are deposited in increasing quantities until the condition is incompatible with life. If the conditions responsible for the hyperglobinæmia are removed, provided the amyloidosis is not too extensive, resorption of the deposits may occur and recovery follow.

Fibrocystic Tumours of the Ovary.

ELIZABETH HERDMAN LEPPER (*Proceedings of the Royal Society of Medicine*, October, 1935) has studied all the fibrous tumours of the ovary which have been removed at the Elizabeth Garrett Anderson Hospital over the last fifteen years, especially those of small size and all the cystic fibromata. The author has seen all the intermediate stages between a solid fibroma and a simple serous cyst. She points out that a fibroma arises from the connective tissue of the ovary and is associated with the presence of free fluid in the abdomen in 30% to 80% of cases. This tumour has a covering of germinal epithelium. All tumours of this kind that have been examined show this germinal epithelium on the surface. If the germinal epithelium is protected by being shut up inside a cyst, it can secrete a surprising amount of fluid—up to seven and a half litres in one day. He advances the view that if the germinal epithelium can secrete so much fluid when it is shut up inside a cyst, there is no reason why it should not do so on the surface of the ovary, providing the cells are healthy. He believes, therefore, that it is the germinal epithelium on the surface of the fibromata which is responsible for the ascites associated with these tumours, and suggests that the fibromata, the fibrocystic tumours and the simple serous cysts should all be grouped together as germinal-celled adeno-fibromata.

The Pathology of Synovial Effusions.

D. H. COLLINS (*The Journal of Pathology and Bacteriology*, January, 1936) discusses the pathology of synovial effusions. He refers to the theory, supported by King, that normal synovial fluid is simply a specialized fluid matrix of a connective tissue. The otherwise anomalous content of mucin or mucoid is explained by this view. The author can bring forward no evidence to conflict with it so long as its application is limited to normal fluid present in normal amount. Other factors have to be considered in regard to pathological fluid. One essential difference is that pathological fluid is present in excessive quantity. An increase in

fluid is due to a transudation from the blood plasma. This source of synovial fluid is obvious when a distended joint is aspirated and becomes refilled. It is less obvious why a transudation takes place after an injury such as tearing of a meniscus of the knee joint. Some synovial effusions contain an increased number of cells, mainly polymorphonuclear cells or lymphocytes. Fluid of this kind is found in association with inflammation. The extent to which inflammatory exudation contributes to the formation of an effusion can be determined by cytological examination of the fluid. In the author's opinion, the two most important estimations are the total cell count and the differential polymorphonuclear cell count. The author draws attention to the difference in cytology of fluid caused by osteoarthritis of traumatic origin and that caused by arthritis of the rheumatoid type. He also draws attention to two examples of sympathetic effusion caused by inflammatory lesions near the joint. In neither case was there a significant abnormality of the total cell or polymorphonuclear cell count, and in neither were the joint tissues themselves involved in the inflammatory process.

MORPHOLOGY.

Development and Histogenesis of the Human Pineal Organ.

R. J. GLADSTONE AND C. P. G. WAKELEY (*Journal of Anatomy*, July, 1935) state that, owing to the vestigial condition of the pineal body in man and mammals generally, the study of the organ in these has hitherto not received the same minute attention as has been given to it in lower types of vertebrates. The recent remarkable progress in diagnosis and treatment of tumours of the pineal gland has done much to focus attention on the structure and exact anatomical relations of the human pineal gland, and the practical application of this work has demonstrated the necessity for further detailed investigation. The authors give a complete description of the development and histogenesis of the pineal gland, and also an account of its adult structure. They state that the parenchymatous tissue in the adult consists of a reticulum of branched pineal cells, among which are a few neuroglial cells, chiefly of the astrocyte type. The "alveolar" appearance which is sometimes seen in the adult specimens is due to the persistence of primary neuro-epithelial cords, cross-sections of which appear as "rosettes". The frequent appearance of glial tracts or plaques containing scattered remnants of degenerating parenchymal cells is an indication of the vestigial condition, of the liability of the pineal gland to undergo cystic degeneration, and possibly also of the origin in it of certain types of tumour. Pineal cysts may result from the breaking down of the central areas of the glial plaques. The nuclei of the glial tissue next the lumen of the cyst may give rise to the appearance of a pseudo-epithelium. Cells and nerve fibres belonging to the sympathetic system accompany the vessels entering and leaving the organ, and medullated nerve fibres connect the anterior and posterior commissures with the parenchymatous tissue. True ganglion cells belonging to the central nervous system and having an axis cylinder process, although described by some authors, appear to be very rarely seen in the human pineal. Transitional forms exist, which are intermediate between the large cells described as "neuronoid" and "parenchymal" cells.

Dissections of Urinary Tubules from the Human Kidney.

HSI-CHING PAI (*Journal of Anatomy*, April, 1935) describes a method of isolating urinary tubules and of measuring them. His results are similar to those of Peter. There is considerable variation in length and diameter in the various parts of the tubule. The range of lengths of the different parts is: First convoluted tubule, 7·0 to 20·0 millimetres; descending limb of the loop of Henle, 1·66 to 5·6 millimetres; ascending limb, 7·5 to 15·0 millimetres. Second convoluted tubule, 1·7 to 4·2 millimetres. Total length, 20·0 to 43·0 millimetres. Only a few measurements of the tubule diameters are given. These are much greater than corresponding measurements given by Peter, although the procedure followed in preparation was similar. Peter's average figures for the four parts are 57μ, 15μ, 30μ and 41μ respectively, and his average diameter for the glomerulus is 152μ to 159μ. The present author's figures are about 76μ, 29μ, 45μ, 55μ and 300μ respectively. The author states that one main effect of his work is to emphasize the great length of the secretory parts of the renal tubules, often about four centimetres in the adult, compared with their diameter, a feature which cannot fail to have significance in attempts to interpret renal functioning.

Intercostal Spaces in Man and Certain Other Mammals.

M. A. H. SIDDIQI AND A. N. MULLICK (*Journal of Anatomy*, April, 1935) dissected the intercostal spaces in sixty human thoraces of different ages and describe five muscles in each space arranged in three planes: (*a*) external intercostal, (*b*) internal intercostal, and (*c*) subcostal, intercostal and *transversus thoracis* connected with one another by the endothoracic fascia. The subcostal and intercostal lie in the same plane and connect with each other. The main intercostal nerve lies between the internal intercostal and the innermost muscular and fibrous plane. A big collateral nerve is given off by the main nerve in some spaces only and occupies the same intermuscular plane as the main nerve. Between the external and internal intercostal muscles there is present a thin, long, muscular branch which extends up to the side of the sternum and supplies the external and internal intercostal muscles. The intercostal spaces of the dog, cat, rabbit, monkey, goat and lamb show an arrangement of muscle planes which in general is the same as in the human being. The nerves are also the same, except that the collateral nerve is absent in every case.

The Major Duodenal Papilla in Man.

V. J. DARDINSKI (*Journal of Anatomy*, July, 1935) describes the result of the study of duodenal papillæ and associated ducts in 100 cases. In 51 cases both pancreatic and common bile ducts emptied separately into the tip of the papilla. In 12 cases both ducts united in the papilla one millimetre from its outlet, in 5 cases two millimetres, in 12 cases three millimetres, in 10 cases four millimetres, in 4 cases five millimetres, and in 4 cases one centimetre from its outlet. In one case both ducts emptied separately into the duodenum, and in one case the pancreatic duct passed through the major papilla, and the common duct passed through a slit-like opening in the wall of the intestine one centimetre below the tip of the papilla. True ampullar dilatation within the papilla is present in those cases in which the two ducts unite five millimetres or more from the outlet. In the remainder both ducts are separated by a thin membrane, formed by the adjacent walls of the pancreatic and common ducts, which extend to the base of the papilla to the point where they unite. In 51 cases, or 51%, this membranous partition extended from the base of the papilla to the outlet, so that the two ducts did not unite and no ampulla was formed. The greatest constriction of the common duct is produced by the intestinal muscle. This would seem to be the most logical point of the sphincter action, if there is any, and would seem to be produced by the intestinal muscle. The independent muscle fibres described by Oddi as being responsible for sphincter action are not circular in their arrangement, but oblique, and the point of greatest constriction of the common duct is not outlined by these fibres. The longitudinal mucous folds within the papilla have a definite arrangement, and the presence of muscle fibres in these folds would indicate that they have an active part.

Complete Absence of the Septum Pellucidum.

B. N. BASU (*Journal of Anatomy*, April, 1935) describes a human brain from which the *septum pellucidum* was absent. There was a wide communication between the opposite lateral ventricles. The ependymal lining of the opposite lateral ventricles was continuous through this communication, and the foramen of Monro was small.

British Medical Association News.

SCIENTIFIC.

A MEETING of the Victorian Branch of the British Medical Association was held at Saint Vincent's Hospital, Melbourne, on November 20, 1935. The meeting took the form of a series of clinical demonstrations by members of the honorary medical staff.

Hypoparathyreoidism.

DR. J. G. HAYDEN showed a patient suffering from hypoparathyreoidism of eighteen months' duration, which was consecutive to a third operation for hyperthyreoidism. Three days after the operation she complained of pains in the limbs, typical tetanic spasms occurred, and her hair fell out. Since then the attacks of spasm had decreased in number, and now occurred only on the last day of the menstrual period, when the blood calcium was at its lowest level. Despite calcium and vitamin *D* therapy the attacks had continued, she had become somewhat pale and puffy in appearance, but had no evidence of hypothyreoidism; she had developed bilateral radiate cataract. After stabilization on a high calcium diet it was found that her blood calcium was five milligrammes per hundred cubic centimetres. Parathormone was administered in doses of twenty units daily, and the blood calcium rose to ten milligrammes *per centum*; the patient felt better and vision definitely improved. The amount of parathormone was then decreased and finally stopped, but the blood calcium commenced to fall and within ten days of cessation of parathormone was eight milligrammes per hundred cubic centimetres. She was then stabilized on ten units of parathormone per day. Dr. Hayden pointed out that persistent post-operative therapy was very rare and that the condition of some patients had been greatly improved by parathyreoid grafts, which he advocated in the present case, owing to the expense of parathormone. He also felt that the parathyreoid glands had not been completely destroyed in this case and that further recovery might follow. Parathyreoid grafts would be valuable in tiding the patient over till the time when her own parathyreoid tissue was sufficient to maintain a normal blood calcium level.

Carotinæmia.

Dr. Hayden's second patient showed a yellow skin pigmentation due to carotinæmia. The patient was a woman of forty-eight years. She had been treated for six months for diabetes, and her diet contained a large quantity of fruit and vegetables, a large portion of the latter being taken in the form of pumpkin. One month previously she had visited Dr. Hayden, complaining of a yellowish pigmentation of her hands, which resembled those of a deeply jaundiced person. On further examination she had a very slight skin pigmentation and marked pigmentation of the buccal mucous membrane. Dr. Hayden stated that the skin pigmentation had been first described by Van Noorden in 1904, but his clinical description had been forgotten and it was freshly described in 1918 and given the name of carotinæmia. Carotene is a precursor of vitamin *A* and existed in the blood stream of normal people in association with the latter; in young people the amount of vitamin *A* greatly exceeded that of carotene, but in old people the quantities approximated and the amount of carotene approached or exceeded the level at which skin pigmentation might occur. Dr. Hayden stated that this was supposed to be due to inadequate conversion by the liver of carotene to vitamin *A* in old people, and suggested that the common yellowish tint of old people was due to the high level of carotene in the blood stream. The condition had no clinical importance, except that in marked cases it had been mistaken for jaundice. Its presence in patients suffering from diabetes did not materially alter the prognosis. The patient presented showed the typical distribution of the pigmentation which in the early stages was most marked in the hands and buccal mucous membranes, but in the advanced stages was generalized. Dr. Hayden said that the condition occurred most commonly in elderly diabetics, and that it was postulated that in addition to their intake of foodstuffs rich in carotene, liver degeneration was a further predisposing cause. In the patient shown, the colour had very materially faded after a month's abstention from pumpkin. The patient presented evidence of arterial damage, as shown by angina of effort and cramps in the legs, both of which symptoms had improved with diabetic restrictions and a suitable amount of insulin. The *T* waves in the electrocardiogram were inverted in Leads I and II.

Ulcerative Colitis.

Dr. Hayden's third patient was a woman who was suffering from ulcerative colitis. She had been presented at the clinical meeting in 1934, at which time, despite the usual routine treatment, she was very emaciated and febrile, and suffered from very frequent bowel motions containing blood and pus. In addition, the liver had become smoothly enlarged and tender. Dr. Hayden had treated the patient with 0·24 gramme (four grains) of "Stovarsol" twice a day, and her condition had promptly improved, she had put on several stone in weight, and at the present time was earning her living. At no time had *Amœbæ histolyticæ* been found in the fæces, and she had never been out of Victoria. Dr. Hayden presented her on this occasion because she was the third patient whom he had seen improve with "Stovarsol" when other measures had failed. "Stovarsol" was not a panacea for ulcerative colitis; only in an odd case did improvement occur, but occasionally the improvement was dramatic. The patient stated that she had had a slight relapse in September, 1935, which she had cured by taking further tablets of "Stovarsol" without seeking medical advice.

Osteitis Deformans.

DR. J. FORBES MACKENZIE showed several patients suffering from Paget's disease (*osteitis deformans*) in whom the operation of inserting musculo-fascial implants into infected bones had been performed. He pointed out that these fascial implants were not detached and were inserted obliquely into large drill holes in the bone. Relief of pain and apparent increased condensation of bone had resulted.

In one case the bone had been previously drilled by another surgeon, but pain had not been relieved until the implant was inserted. This relief from pain had persisted since operation seven months earlier.

In answer to questions, Dr. Mackenzie replied that the idea was to drain the bone and to lessen venous stasis. Seven patients had been treated in this way with satisfactory results.

Excision of the Breast.

Dr. Mackenzie also showed a patient who had undergone excision of the breast, in which a special flap was used. It was found that the use of this flap insured a flexible axilla and made closure much easier.

Carcinoma of the Breast.

Dr. Mackenzie demonstrated a case of carcinoma of the breast in a male aged sixty-seven years.

Cholecystectomy.

SIR HUGH DEVINE showed a "Ciné-Kodak" picture of cholecystectomy. The picture showed the incision, the insertion of the Devine retractor and the mechanism whereby the mechanical hands were used to isolate the operation area by segregating the intestines underneath the abdominal wall. Although the liver was not delivered and the gall-bladder was removed in the abdominal cavity, the picture showed the ligation of the cystic duct and the cystic artery and the dissection and suture of the gall-

bladder bed. The removal of a stone from the common duct in the same case was then illustrated—ample evidence of the great accessibility permitted by the use of the Devine retracting operation. The delivery of the stone, the dilatation of the duct with Hagar's dilators, and the suture of the incision in the common duct were all well shown. The closure of the abdominal wall in layers completed the picture.

Fracture of the Spine.

DR. THOMAS KING showed two patients who suffered from fracture of the spine. In one case the fracture involved the eleventh thoracic vertebral body, for which the usual cast was applied, extending from the *manubrium sterni* to the *symphysis pubis*. Hyperextension during application of the cast was maintained by supporting the shoulders with padded slings attached to the ceiling by a block and tackle, recommended by Watson Jones as an improvement on his original method. Dr. King had found this more effective and comfortable for the patient than a sling around the front of the chest (Böhler), the hammock sling and other methods.

In discussing the history of the second patient, Dr. King said that when the fracture was above the seventh thoracic vertebra, neither the method of reduction nor the cast used for lower thoracic or lumbar vertebral fractures was satisfactory. In these high fractures the patient was suspended from the ceiling with a sling around the chest at the nipple line, and facing the ceiling, as recommended by Böhler. In difficult cases Dr. King had used successfully, and found necessary, a motor car jack, which exerted an upward pressure on the kyphosis. A one-inch piece of felt, three by four inches, was placed over the end of the jack. The cast included the neck, chin and occiput, otherwise recurrence of the deformity could occur. This cast had been found at present to be difficult technically to construct on account of the peculiar position.

Osteitis of the Carpal Bones.

Dr. King's third patient presented a difficulty in diagnosis. Seven years previously the patient developed a suppurative teno-synovitis of the ring finger, due to cutting this finger whilst handling a barrel of animal fat in a slaughter house. Five weeks before presenting himself at the out-patients' department he "sprained" his wrist. Examination revealed arthritis of the wrist and a compound palmar ganglion which appeared to be about to discharge through the skin in the front of the wrist. X ray examination of the wrist and hand revealed no abnormality. Operation was performed and pus was obtained from the radial bursa. This was bacteriologically sterile and attempts to culture tubercle bacilli had been unsuccessful. From the common synovial sheath hundreds of melon seed bodies were expressed. Microscopic examination of the synovial membrane showed no typical signs of tuberculous granulation tissue. X ray examination six weeks later showed osteitis of the distal end of the radius and ulna. The bony surfaces of the distal radio-ulnar joint were eroded and sclerosis of the surrounding bone was present with subperiosteal new bone formation. The two incisions practically healed and showed no typical tuberculous features. A month later a thin sero-purulent pus could be expressed from a fresh dorsal sinus. X ray examination at that stage revealed osteitis of the proximal view of carpal bones. The general opinion expressed was that the condition was due to chronic staphylococcal infection. No evidence of gonococcal or luetic infection was obtained. The association of melon seed bodies in the common tendon sheath (ulnar bursa), sterile pus in the radial bursa, and chronic suppurative arthritis of the distal radio-ulnar and wrist joints was difficult to correlate.

Fibrocystic Changes in Bone.

Dr. King's fourth patient, a girl of fourteen years, had sprained her ankle about six weeks previously. She had definite abduction of the foot at the ankle joint, and the styloid process of the fibular malleolus was proximal to the tip of the medial malleolus; also the fibular malleolus was broadened and roughened. X ray examination revealed fibrocystic changes in the lower end of the fibula, which was maldeveloped; the changes appeared to be of long standing. Two months later X ray examination showed increased calcification of the fibrocystic area, but cystic changes were developing in the tibia. An outside iron and "T" strap were used to control the direction of bone growth and gradually correct the bone growth. No clinical evidence of bone changes elsewhere was detected.

Dr. King also showed a patient, aged forty years, who had a good family and past history, but who had developed pain and slight swelling in the knee joint two months previously. There was little to be found on physical examination, but X ray examination revealed erosion of the anterior aspect of the femoral condyle, suggesting tuberculous osteitis. The great value, in certain cases, of Frick's technique for showing the posterior femoral intercondylar region was indicated. Dr. King said that this view could be obtained by flexing the knee to 135°, placing a "Kodak" curved casette behind the knee joint and directing the central ray for the target at right angles to the front of the tibia, through the knee joint. Alternatively, a similar view could be obtained if the patient knelt with the thigh at an angle of 160° to a flat horizontal casette. The central ray from the target was then directed vertically onto the centre of the popliteal fossa. Dr. John O'Sullivan was of the opinion that the Bucky diaphragm should be used when an injection into the joint was made.

Disseminated Sclerosis.

DR. THOMAS DALY showed a man, aged thirty-five years, who had complained of gradual weakness and uselessness of his legs for the last eighteen months. This had been getting worse until he had great difficulty with walking. He had precipitance of micturition and some incontinence of urine. His sight had been good and there had been no diplopia.

Examination of the nervous system revealed no abnormality of the cranial nerves, upper limbs or trunk, except that both lower superficial abdominal reflexes were absent. The legs were spastic, and distinct weakness of muscle power was noted. Reflexes were very exaggerated; both plantar reflexes were extensor; knee and ankle clonus was present. Coordination, vibration sense, and sensation to heat and cold, pin-point and light touch were good. The patient was very ataxic. His fundi were normal in appearance, no pallor of the disks being seen. Examination of the cerebro-spinal fluid revealed no abnormality in colour, pressure, protein content or cell count. The colloidal gold test curve was 00002212221. The Wassermann test, when applied to both the blood and cerebro-spinal fluid, gave no reaction. A lipiodol injection into the spinal canal showed no hold-up on X ray examination, a normal picture being obtained. The purely spinal signs in this patient had strongly suggested the possible presence of a tumour of the spinal cord. The patient was being treated with arsenic. Liver extract had not been given.

Carcinoma of the Bronchus.

Dr. Daly's next patient was a man, aged sixty-nine years, who complained of pain in the right side of the chest, just above the nipple, together with difficulty in swallowing and loss of weight. He had had a cough for about four years, with a large amount of thick yellowish sputum. There had never been any hæmoptysis or colour in the sputum. He had lost about 18·9 kilograms (three stone) in weight in the last three months. Physical examination revealed a very emaciated man with definite retraction of the right supraclavicular space as compared with the left side. There were signs of consolidation and absolute flat dulness at the right apical area down to the second interspace anteriorly and to the spine of the scapular posteriorly. There was no evidence of fluid in the chest. X ray examination after the injection of lipiodol showed good filling of the bronchial tree, but it was not possible to outline the epiarterial bronchus on the right side. This was consistent with a stenosing process in the bronchus and also with pressure on the bronchus from without,

giving rise to obstruction, most possibly due to carcinoma. No other evidence of neoplasm was found. An opaque meal failed to reveal any evidence of malignant disease of the alimentary tract. Screening of the chest revealed a rounded shadow in the right apical area. The rest of the fields were clear. It was thought advisable, on account of the patient's rapid loss of weight, and age, not to undertake any radical treatment.

Polycystic Disease of the Lung.

DR. W. J. NEWING presented a female patient, aged sixty-five years, in quite good general condition, who, many years previously, had been treated for tuberculosis. Cough and sputum, without loss of weight, had been the predominating symptoms. These symptoms, however, had been present, with periods of freedom, for approximately twenty years, and the patient entered hospital because of an exacerbation and for investigation. On examination percussion was normal; the vesicular murmur was bronchial in character over the whole chest, of the type usually described as indicating pulmonary fibrosis. Moist râles were uniformly scattered throughout the lungs. X ray examination revealed what could be described only as a honeycomb-like condition of both lungs and diagnosed by the radiologist as polycystic disease of the lung. Such a condition would be extremely rare and was usually congenital. Dr. Newing showed a specimen of polycystic disease removed at autopsy from a child.

Secondary Carcinoma of the Lung.

Dr. Newing showed another patient, aged sixty-four years, who eighteen years previously had had a breast removed for cancer. She entered hospital for investigation, complaining of great loss of weight and energy and epigastric pain associated with food. She had a very slight cough and no sputum. No abdominal abnormality could be found, but examination of the chest indicated disease of the left upper lobe. X ray examination revealed in the right lower lobe a rounded shadow that was almost certainly a secondary carcinoma. In the left upper lobe, peripherally situated, was a shadow which appeared to consist of three small cavities with no surrounding infiltration and not connected with the hilus, as was the case with similar tuberculous lesions. No sputum was available. Dr. Newing was of the opinion that both lesions were probably malignant, although the possibility of the lesion on the left side being tuberculous could not be disregarded.

Bronchiectasis.

Dr. Newing showed a further patient, a male, aged thirty-nine years, with a history of cough and copious sputum for the past twelve months, with great loss of weight and marked dyspnœa. There was no history of previous cough. Prior examination and X ray findings twelve months previously had been thought to indicate widespread tuberculosis, although repeated sputum examinations gave negative results. The patient spent several months in a sanatorium, where his case excited considerable interest. Lipiodol was injected and revealed one fairly large bronchiectatic cavity, but nothing widespread, as the diffuse X ray shadows, scattered over both lungs, would tend to indicate. The condition did not simulate lung abscess. The Wassermann test gave no reaction. The patient was still under observation.

Carcinoma of the Male Urethra.

DR. HENRY MORTENSEN showed specimens from a case of carcinoma of the urethra. The history was as follows. A male patient, aged sixty-five years, had been treated for stricture of the urethra for twenty-six years. He was admitted to hospital with acute retention of urine. This was relieved by catheterization and, an indwelling catheter being used for four days, the stricture was easily dilated to 12-15 English. He was discharged to the out-patient department, where he had sounds passed every week for three weeks. After the last of these treatments he complained of pain and was admitted to hospital with a hard tender swelling in the perineum, which was diagnosed as periurethral abscess and incised, pus being obtained. The condition in the perineum did not improve and, the induration having increased, a further incision was made. The granulation tissue in the perineum then took on a fungating appearance and a portion was removed for biopsy, revealing an epithelioma with marked keratinization. A section of the perineum was displayed by Dr. Mortensen as a *post mortem* specimen showing the tumour spreading along the urethra from the verumontanum to half way along the penile portion, infiltrating the prostate, ischio-rectal fossa, scrotum, testis and epididymis. Microscopic sections from these various regions were exhibited, demonstrating the extensive nature of the involvement.

Heart Disease.

DR. GERALD DOYLE showed a male patient, E.L., aged fifty-four years, a carrier by occupation. For some three or four months he had had a tight feeling in the chest, associated with a severe epigastric pain which radiated down the left arm. Three weeks before his coming to hospital the site of the pain changed to the gall-bladder region and radiated up to the right shoulder and occasionally went down the left arm. This pain was always worse after food and the patient had been afraid to eat, as the pain appeared immediately after food was taken. Defæcation and micturition also brought on the pain, which was occasionally produced by the raising of the arms above the head. With the exception of an attack of pleurisy, the past history was "negative". There were no symptoms referable to the other systems.

Examination of the cardio-vascular system did not reveal any cardiac dilatation. The heart sounds were soft and rapid at the apex and the second aortic sound was definitely accentuated. The systolic blood pressure was 210 and the diastolic pressure 150 millimetres of mercury. The liver was enlarged on percussion measurements. The blood did not react to the Wassermann test. X ray examination of the chest revealed definite enlargement of the left side of the heart and rounding. The heart was of the aortic type. The gall-bladder shadow was well outlined by X ray examination, with a good emptying. Arthritic changes were present in the spine. The electrocardiograph revealed a left bundle branch block. As the patient was having very severe pain, which, although relieved by inhalation of amyl nitrite, was very frequent and severe, information was sought as to the possibilities of surgical treatment, either excision of the stellate ganglion or alcoholic injections of the spinal nerves.

Dr. Doyle's second patient, L.F., was a builder's labourer, who had presented himself, complaining of precordial pain radiating down the left arm and to the jaw on the left side. This patient's pain also came on after meals and was severe enough to put the patient off food because of fear of the pain. Except for pneumonia six years ago and "an attack of blood pressure", the past history was normal. There was extreme dyspnœa on exertion, but no swelling of the extremities was present. General examination revealed signs of moderate arteriosclerosis. The systolic blood pressure was 170 and the diastolic pressure 140 millimetres of mercury on several occasions. The cardiac impulse was 10·0 centimetres (four inches) from the middle line. The blood did not react to the Wassermann test. Electrocardiographic examination in December, 1934, revealed a sharply inverted *T* wave in Leads II and III, with high take-off in Lead III, suggesting coronary thrombosis.

The pain was relieved by amyl nitrite. At the time of examination a small epithelioma of the lower lip was noted, with enlargement of the submaxillary glands. General medical treatment was instituted for several months, with fair result. During the year 1935 the condition was much better. In January, 1935, radium was applied to the lip and the severity of the pain precluded any surgical treatment to the glands. In October, 1935, gland dissection under local anæsthesia was decided on and carried out. Since the operation the patient stated that the pain, dyspnœa and chest oppression had entirely

left him. He was anxious to return to his work. Recently, against orders, he had performed heavy work without any distress. An electrocardiographic tracing taken a week earlier, in the period of absence from pain, revealed no change in the curve. Advice was asked as to whether section of the nerves supplying the jaw relieved one of the trigger areas of the pain. Dr. Doyle said that observations would be made to see whether, with the return of sensation to the jaw, the pain would continue.

Rheumatic Heart Disease.

DR. T. HEALE showed a man, aged twenty-nine years, who had rheumatic heart disease, moderate enlargement of the heart, advanced mitral stenosis and auricular fibrillation. He was admitted to hospital in August, 1935, with early congestive heart failure. Until two weeks before his admission he had been able to do moderately strenuous labouring work without discomfort. Then quite rapidly he became breathless on exertion and finally breathless at rest. With rest and digitalis medication the congestive failure cleared and the heart rate was controlled. Because the patient had had very good tolerance for exercise before the onset of the auricular fibrillation, the use of quinidine to restore normal rhythm was considered. The developed mitral stenosis and enlargement of the heart were points against its use. Finally quinidine was given, but had to be discontinued on the fourth day. At the time of the meeting the patient was taking tincture of digitalis, 2·0 cubic centimetres (thirty minims) daily, which controlled the heart rate satisfactorily. His activities were, however, greatly limited.

Thyreotoxic Heart Disease.

Dr. Heale also showed a woman, aged forty-nine years, who had thyreotoxicosis, thyreotoxic heart disease and auricular fibrillation. She was admitted to hospital in September, 1935. The duration of the thyreotoxic state was indefinite, but had probably been present for two years. For three months prior to admission to hospital she had noticed increasing breathlessness on exertion. On examination the thyreoid gland was slightly enlarged, the right lobe more than the left; it was not nodular. The heart was not enlarged, but auricular fibrillation, with the heart rate at 120 beats per minute, was present. There was no congestive failure. The basal metabolic rate was +32%. The treatment consisted in rest, digitalis and iodine. At the end of the third week subtotal thyreoidectomy was performed. At that time, five weeks after operation, the patient felt very much better, but the auricular fibrillation persisted. Dr. Heale said that auricular fibrillation often stopped spontaneously within a few weeks after successful operation. If it did not do so within three months, quinidine could be employed to arrest it.

Dr. Heale discussed the importance of making as complete a diagnosis as possible in all patients with heart disease. A complete cardiac diagnosis included a statement of: (*a*) ætiology, (*b*) structural changes, (*c*) disorders of function, and (*d*) capacity for work. Dr. Heale mentioned the common types of heart disease. He also discussed the use of quinidine in heart disease.

Hyperpiesia.

DR. ERIC COOPER presented six patients to illustrate some of the common accompaniments of hyperpiesia and to indicate that the prognosis of high blood pressure was not always so bad as was usually inferred.

C.S., a female, aged sixty-four years, had attended the out-patient department in 1929, complaining of loss of weight, mental depression and insomnia. The heart was enlarged; the systolic blood pressure was 200 and the diastolic pressure 142 millimetres of mercury; and the specific gravity of the urine was 1,010. Treatment with bromides and bland diet had been carried out. In spite of the arteriosclerosis with renal failure, six years later the patient was still living. The systolic pressure was 206 and the diastolic pressure 130 millimetres of mercury; she had dyspnœa on exertion; and the specific gravity of the urine was 1,012.

A.S., aged fifty-two years, had been known to have a high blood pressure for five years prior to reporting at the hospital in 1933 with a systolic pressure of 206 and a diastolic pressure of 126 millimetres of mercury and symptoms of giddiness and palpitation. Examination of the heart clinically revealed no abnormal findings. In September, 1935, there had been a sudden onset of severe precordial pain with urgent dyspnœa. The electrocardiogram confirmed the diagnosis of coronary thrombosis. The heart had enlarged and, two months later, the systolic blood pressure was 210 and the diastolic pressure 160 millimetres of mercury. Dr. Cooper commented on the occurrence of non-fatal coronary occlusion seven years after clinical evidence of arteriosclerosis had been obtained.

A.H., aged sixty-nine years, had been known to have high blood pressure for five years. In March 1935, the systolic reading was 220 and the diastolic reading 110 millimetres of mercury, and the urine had contained 0·8 *per centum* of glucose. The optic fundi showed retinal arteriosclerotic changes with hæmorrhages, but the sugar tolerance curve was within normal limits and the urine was sugar-free.

F.W., a female, aged seventy-six years, had reported in the out-patient department in 1928 with œdema of the ankles and frequency of micturition. The systolic blood pressure was 170 and the diastolic pressure 80 millimetres of mercury. In 1929 it was noted that the urine was loaded with sugar and that the systolic pressure was 200 and the diastolic pressure 110 millimetres of mercury. The urine became sugar-free when the patient was dieted, but in May, 1935, she returned, weighing almost 94·5 kilograms (fifteen stone) with urine loaded with sugar. The blood sugar (fasting) was 0·241 *per centum*; the systolic pressure was 180 and the diastolic pressure was 100 millimetres of mercury. She was placed on a diet of 1,700 calories and by November, 1935, the urine was sugar-free; she weighed only 81 kilograms (twelve stone twelve pounds); the systolic blood pressure was 160 and the diastolic pressure only 80 millimetres of mercury.

B.H., a female, aged fifty-six years, reported in 1935 having lost 18·9 kilograms (three stone) in weight in three years, and complaining of dyspnœa on exertion and œdema of the ankles. The systolic blood pressure was 180 and the diastolic pressure 90 millimetres of mercury, and the urine was loaded with sugar. She had been treated by means of the 1,700-calorie diet, but had a high renal threshold for glucose, because the urine was sugar-free when the blood sugar amounted to 0·218 *per centum*.

The other patient in the series was A.N., a female, aged sixty-seven years, who also had *diabetes mellitus* and hyperpiesia. Glycosuria had been known to be present for seven years and the blood pressure elevation had been noted for five years. The skin had been becoming dark in colour (hæmochromatosis) for five years. The systolic blood pressure was 260 and the diastolic pressure 140 millimetres of mercury; the heart was enlarged to the left. The pigmentation was of bronze colour and of general distribution, with increased intensity on the face and neck and on the peripheral portions of the upper and lower limbs; the mucous membranes were not pigmented. The urine contained 2% of sugar, and the tolerance curve was of the diabetic type, with fasting blood sugar of 0·187%. The spleen was not palpable, neither was the liver enlarged. Dr. Cooper said that, in the absence of evidence of splenic or hepatic enlargement, and owing to the sex of the patient, the diagnosis of hæmochromatosis was in doubt.

In discussing this series of patients Dr. H. F. Maudsley drew attention to the difference between the good prognosis of these stout, elderly patients with elevation of blood pressure and the bad prognosis of hyperpiesia in younger, thin subjects with psychical symptoms.

Syringomyelia.

Dr. Cooper also showed two patients with syringomyelia. One was a female, A.B., aged forty-nine years, who had had neuropathic arthritis of the right shoulder for one

year and right claw-hand for five years. Hemianæsthesia was of the incomplete type, but complete loss of heat, cold and pain sensibility was demonstrable on the periphery of the right upper extremity and in a band on the right side of the thorax and abdomen. The right pyramidal tract was involved and gross scoliosis was present.

The other patient was F.C., a male, aged forty-two years, who, over a period of seven years, had had repeated burns and infections of the right hand, with gross œdema of the hand. One finger had been amputated because of infected burns. Sensory loss of pain, heat and cold was confined to the hand and forearm on each side, the deep reflexes in the lower limbs were hyperactive, and the pupils reacted sluggishly to light.

Mönckeberg's Sclerosis.

Dr. C. H. Fitts showed a male patient, aged forty years, a clerk, who for eight years had complained of pain in the epigastrium, under the mid-sternum, the left scapula and down the inner side of the left arm. The pain was burning on the trunk and tingling down the left arm. It occurred with exertion any time that he moved about and immediately after food and disappeared on resting. The breathlessness with the pain was increasing with the passage of time. The pain was relieved with trinitrin tablets, 0·65 milligramme ($^{1}/_{100}$ grain). The patient had not had rheumatic fever, but had suffered from dysentery during the War and from influenza during the epidemic of 1918. Though his heart had been examined repeatedly, no mention had ever been made of heart affection. The outstanding signs were the presence of a thrill and a harsh systolic murmur at the aortic area; there was no evidence of involvement of the mitral valve; the volume of the pulse was small; the systolic blood pressure was 130 millimetres and the diastolic pressure 90 millimetres of mercury in each arm. The gastro-intestinal tract had been investigated before he came to the hospital, and, in addition to the presence of occult blood in the fæces at several examinations, there was radiographic evidence of duodenal ulcer. The pain had failed to respond to medical treatment, though he got apparent relief when at rest during the course of treatment. Dr. Fitts was not surprised that the blood did not yield the Wassermann reaction, because syphilis was never a cause of aortic stenosis. Electrocardiographic investigation showed a sharp inversion of the *T* wave in all leads. By manipulation under the screen it was demonstrated skiagraphically that small areas of calcification were present in the anatomical position of the aortic valves, and a film was presented in confirmation.

Dr. Fitts considered that the condition was atheroma and calcification of the aortic valve (Mönckeberg's sclerosis) with aortic stenosis and *angina pectoris* occurring at an unusually early age. He said that the affection of the aortic valve might be rheumatic, atheromatous, or a relic of a healed infective endocarditis. The absence of involvement of any other valve and of any evidence of cardiac involvement in early adult life helped him to exclude rheumatism as a cause. The severe type of angina and the sharp inversion of the *T* wave in all leads were very unusual unless atheroma was present. It seemed likely that the same process was affecting the aortic valves and the coronary vessels. He had seen a similar case at the National Heart Hospital. The brother of this patient had died suddenly of a vascular lesion at the age of thirty-six years, and at autopsy widespread atheromatous degeneration of the vessels had been found.

Syphilitic Aortitis and Angina Decubitus.

Dr. Fitts also showed a male patient, a carpenter, aged fifty-seven years, who, when first seen by him three months earlier, had complained of a stabbing, constrictive pain in the chest, which came on only at night when he was in bed, was not associated with breathlessness, and lasted only a few minutes. He was not dyspnœic, nor did he have pain when walking or working. A systolic murmur was present and a diastolic "blow" was audible at the aortic area and down the left border of the sternum. Dr. Fitts considered that the presence of anginal pain and of aortic incompetence in a man of this age made the diagnosis of syphilitic aortitis practically certain. The blood reacted very strongly to the Wassermann test. Left-sided predominance and inversion of *T* III were demonstrated in the electrocardiogram. There was radiographic evidence of enlargement of the left ventricle and of irregular dilatation of the aorta, especially in the ascending aorta, and there was not any vertebral erosion.

In his comments on this case Dr. Fitts said that the occurrence of anginal pain, apart from coronary thrombosis, in short attacks while the patient was at rest in bed and without angina of effort was not so very rare. It was sometimes called *angina decubitus*, but had been discussed exhaustively by Gallavardin under the title "*angor au repos, ou nocturne*". Except for the conditions under which it occurred, it did not differ in any respect from angina of effort and might occur alike with syphilis as the basis or with atheroma of the coronary vessels. Syphilis was very rarely the cause of angina, unless with aortic incompetence, and then it was almost always the cause.

Various Heart Affections.

Another patient shown by Dr. Fitts was a middle-aged woman with rheumatic heart disease, mitral stenosis and hypertension. He said that such cases were often thought to be examples of myocardial degeneration or hypertensive heart disease, and the mitral stenosis might go undetected. The diastolic murmur at the mitral area was often difficult to hear, as in this case, but skiagraphy and electrocardiography would support the diagnosis.

Dr. Fitts also showed a patient with rheumatic heart disease and mitral stenosis associated with mild thyreotoxicosis, and said that, in spite of the presence of two of the most potent factors in the production of auricular fibrillation, the rhythm in the majority of these cases remained normal.

A woman, aged fifty-one years, was another of Dr. Fitts's patients. She furnished an example of hypertensive heart disease with bundle branch block and gallop rhythm. Dr. Fitts said that it had been pointed out by Potain that the gallop was often better felt than heard, and also that a double impulse was often visible. During the evening the rate of the ventricle slowed down to the region of eighty beats per minute and for a time the gallop was neither audible nor palpable.

Circumscribed Myxœdema.

Dr. Fitts also showed a woman, aged fifty-one years, with so-called myxœdema associated with thyreotoxicosis. In 1922 and again in 1932 the patient had been operated on for toxic goitre and she still had exophthalmos in high degree. The patient was leading a busy life, maintaining herself by her own exertions, and probably the thyreoid function was slightly below normal. Two symmetrical, irregular, raised, erythematous, œdematous plaques involved the skin in the pre-tibial areas, and projecting above these areas were small translucent papules. The swelling of the left leg had appeared insidiously two and a half years and that of the right leg one and a half years previous to the meeting. The skin was not irritable. Dr. Fitts stated that only thirty-four similar recorded cases could be found, although it was probable that many more had occurred. In every instance the patient had been the subject of thyreotoxicosis, though the phase in which the skin lesions became apparent varied; thus it might be before or after operation, but when it appeared after operation it might be associated with either a hypothyreoid stage or with a recurrence of toxic symptoms.

MEDICO-POLITICAL.

A meeting of the Victorian Branch of the British Medical Association was held at the Medical Society Hall, East Melbourne, on February 5, 1936, Dr. Walter Summons, the President, in the chair.

BRITISH MEDICAL ASSOCIATION (VICTORIAN BRANCH).

Statement of Receipts and Payments for Period from January 11, 1935, to December 31, 1935.

RECEIPTS.	£	s.	d.
To Cash in Hand	12	0	0
„ Medical Benevolent Fund	164	3	0
„ Typewriting	16	16	10
„ Lists of Members	1	7	6
„ Subscriptions	5,460	15	6
„ Clerical Assistance	0	14	5
„ Rent of Hall	17	16	0
„ Profit on Entertainments	50	0	0
	£5,723	13	3

EXPENDITURE.	£	s.	d.
By Balance at National Bank of Australasia, Limited, January 11, 1935	2	7	4
„ Advertising	7	16	0
„ Salaries	690	18	4
„ Audit Fees	5	5	0
„ Bank Charges	2	4	10
„ Medical Benevolent Fund	154	7	0
„ Electric Light and Power	5	1	7
„ Federal Council	183	3	0
„ Medical Society of Victoria	2,514	11	4
„ Printing	17	0	7
„ Postages	74	1	5
„ Repairs and Replacements	1	4	2
„ Stationery	36	1	0
„ Lantern	5	10	0
„ Sundry Expenses	36	4	11
„ Telephone and Telegrams	22	19	3
„ Travelling Expenses	22	11	10
„ *The British Medical Journal*	1,632	5	0
„ C. S. Crouch—Pension	287	10	0
„ Annual Meeting	0	18	0
„ Cash in Hand	12	0	0
„ Balance at National Bank of Australasia, Limited, at December 31, 1935	9	12	8
	£5,723	13	3

Compared with the Books and Accounts of the British Medical Association (Victorian Branch) and found to be in accordance therewith.

EDGAR H. WARD, Financial Secretary.
C. H. MOLLISON, Honorary Treasurer.
Melbourne, February 1, 1936.

J. V. M. WOOD & Co.,
Chartered Accountants.

MEDICAL SOCIETY OF VICTORIA.

Statement of Receipts and Expenditure for Period from January 11, 1935, to December 31, 1935.

RECEIPTS.	£	s.	d.
To Balance at National Bank of Australasia, Limited, January 11, 1935	182	9	6
„ British Medical Agency—Grant	100	0	0
„ Subscriptions	2,514	11	4
„ British Medical Insurance Company, for Hospital Benefits Association	675	0	0
„ British Medical Insurance Company—Grant	360	0	0
„ Profit on Entertainments	42	0	5
	£3,874	1	3

EXPENDITURE.	£	s.	d.
By THE MEDICAL JOURNAL OF AUSTRALIA	1,276	12	6
„ Rates, Taxes and Insurance	60	10	9
„ Repairs	179	16	2
„ Debenture Interest	302	10	0
„ C. S. Crouch—Presentation	9	6	0
„ Medical Secretary's Salary	607	10	0
„ Caretaker—Salary	91	13	4
„ E. H. Ward—Bonus	75	0	0
„ Library Clerk—Salary	93	7	0
„ Audit Fee	5	5	0
„ Travelling Expenses	29	16	8
„ Bank Charges	1	16	1
„ Furniture and Equipment	25	0	6
„ Library— Books, Journals *et cetera* £184 0 6 *Less* Purchases by British Medical Insurance Co. 20 19 6	163	1	0
„ Hospital Benefits Association	675	0	0
„ Postages	74	1	4
„ Stationery	36	0	11
„ Telephone	22	19	3
„ Electric Light	5	1	8
„ Printing	17	0	8
„ Sundries	2	2	0
„ Balance at National Bank of Australasia, Limited, at December 31, 1935	120	10	5
	£3,874	1	3

Compared with the Books and Accounts of the Medical Society of Victoria and found to be in accordance therewith.

EDGAR H. WARD, Financial Secretary.
C. H. MOLLISON, Honorary Treasurer.
Melbourne, February 1, 1936.

J. V. M. WOOD & Co.,
Chartered Accountants.

Financial Statements.

DR. C. H. MOLLISON, the Honorary Treasurer, presented the statement of receipts and payments of the Victorian Branch of the British Medical Association and of the Medical Society of Victoria for the period January 11, 1935, to December, 1935. The statements, which are published herewith, were adopted.

NOMINATIONS AND ELECTIONS.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Farrar, Neil H., M.B., Ch.M., 1916 (Univ. Sydney), 135, Macquarie Street, Sydney.

Public Health.

AUSTRALIAN CANCER CONFERENCE.

THE seventh Australian Cancer Conference will be held in Melbourne during the week May 4 to 8, 1936.

The Conference is convened by the Commonwealth Department of Health, but the detailed arrangements are being made in close conjunction with the Royal Australasian College of Surgeons and the Victorian Branch of the British Medical Association. It will be held in the hall of the Royal Australasian College of Surgeons, Spring Street, Melbourne.

The preliminary draft of the agenda for the Conference has already been widely circulated. The principal features are as follow:

Monday, May 4.

2 p.m.—Opening of the Conference by the Right Honourable the Prime Minister. This will be followed by an address by the Chairman, Dr. J. H. L. Cumpston, C.M.G. It is proposed to arrange to broadcast both these addresses. These addresses will be followed by the presentation to the Conference of a review of developments in Australia during the past year in relation to the treatment, investigation and control of cancer, and of a report on the control of cancer, prepared by Dr. L. M. McKillop, of Brisbane, for the Commonwealth Government. These reports will be printed for circulation before the Conference. They will not be read at the Conference, but will be open for discussion when the question of organization for the control of cancer is being considered on the following Wednesday morning.

At 3.45 p.m. a discussion will take place on practical steps for improving facilities in country centres and rural districts for examination, diagnosis and selection of appropriate methods of treatment in cancer cases. This discussion will be opened by speakers from country divisions under arrangement with the Victorian Branch of the British Medical Association.

Tuesday, May 5.

9.30 a.m. to 11.15 a.m.—Demonstrations at the Women's and Children's Hospitals.

11.30 a.m. to 1 p.m.—Demonstrations and lecturettes at the Pathological Department, University of Melbourne.

Afternoon.—In the afternoon the subject of cancer of the tongue will be considered. Papers will be read from the surgical aspects by Sir Henry Newland and Dr. Henry Searby, and from the radiological aspects by Dr. L. J. Clendinnen and Dr. Val McDowall.

The results of treatment of tongue cancer by various methods in the treatment centres in Australia will be presented by Dr. M. J. Holmes, and the results obtained in the treatment of cancer at the Adelaide Hospital will be indicated by Dr. I. B. Jose. These papers will be followed by a full discussion on the subject of tongue cancer.

Wednesday, May 6.

9.30 a.m.—The session will open with a paper by Dr. C. E. Eddy on developments throughout the world in relation to the production and use of X rays and with special reference to the physical aspects of radium and X ray therapy.

10.15 a.m.—Consideration will be given to the report of Dr. L. M. McKillop and to the review of developments presented to the Conference on Monday afternoon. At this session various aspects of organization for the control of cancer in Australia will be discussed.

2 p.m. to 5 p.m.—Demonstrations and lecturettes in the hall of the Royal Australasian College of Surgeons.

Thursday, May 7.

9.30 a.m. to 12.30 p.m.—Clinical, pathological, surgical and radiological lecturettes and demonstrations at the Alfred and Prince Henry Hospitals.

2 p.m.—Demonstrations and lecturettes at the Commonwealth X Ray and Radium Laboratory, University of Melbourne.

3 p.m.—The official opening of the Commonwealth X Ray and Radium Laboratory, University of Melbourne.

4 p.m.—Popular demonstrations at the Commonwealth X Ray and Radium Laboratory. During the afternoon members of the Conference will be guests of the University of Melbourne.

Friday, May 8.

9.45 a.m. to 12 noon.—Clinical demonstrations and lecturettes at the Austin Hospital, Heidelberg.

1.30 p.m. to 3.45 p.m.—Clinical, pathological, surgical and radiological lecturettes and demonstrations at the Royal Melbourne Hospital and Saint Vincent's Hospital.

4 p.m.—Official closing of the Conference in the hall of the Royal Australasian College of Surgeons.

At appropriate times during the Conference various other matters will be discussed, including the question of an "Australian Journal of Cancer", the medical certification of deaths from cancer, action in relation to reconditioning and remounting of Commonwealth radium, radon production and issue, and the international aspects of cancer control.

At this Conference considerable time is to be devoted to lecturettes and demonstrations on the clinical and pathological aspects of cancer, and to discussion of the practical difficulties in the way of bringing patients under properly selected treatment with as little delay as possible. The Conference will be of value to all branches of the medical profession, and the Commonwealth Department of Health extends a cordial invitation to all medical practitioners who may so desire to attend the Conference and to take part in its discussions.

Correspondence.

NEUROLOGICAL SURGERY AND ANÆSTHESIA.

SIR: As Dr. Mennell has construed a statement which appeared in your leader of December 14 to mean that in Australia the average mortality rate of operations undertaken for the removal of intracranial tumours is about 80%, it is likely that others have done so as well. This is unfortunate. There are certain points raised in the leader and Dr. Mennell's letter which call for comment.

In your leader it is stated that: "It is computed that at present the death rate for complete removal of cerebral tumours in Australia is somewhere in the region of 80%." I do not know how this figure was arrived at, but it may be approximately correct if the word complete is taken

at its face value. If it is meant to imply that the removal in each case is such that there will be no recurrence, then practically all gliomata, pituitary tumours, neurinomata, carcinomata and many meningiomata are excluded. There are not many tumours left to discuss. I know of no statistics calculated on this basis and published elsewhere. Hence it is idle to compare the assumed mortality of 80% with figures published in other countries.

Dr. Mennell reports a mortality of 12·7% after operation for glioma, by the late Sir Percy Sargent. Only deaths occurring within forty-eight hours of the operation are included. The figures are therefore practically useless, as many deaths take place after this period. Moreover, it is certain that recurrence would have taken place in most of those patients surviving operation. Hence the mortality rate cannot reasonably be compared with that mentioned in your leader.

In order to help to dispel the idea that operations for the removal of intracranial tumours undertaken in Australia are so very unsuccessful, as has been assumed by Dr. Mennell, I include some figures of my own. It will be obvious that I do this not because the results are unusually good, but only because they are better than Dr. Mennell, and possibly others who have misinterpreted your leading article, would expect in Australia. Other Australian surgeons, who have probably obtained similar or better results, might helpfully acquaint the profession of this fact. There are good reasons why in the past neurosurgery has not developed in Australia as in other countries, but I do not propose to discuss these. Suffice it to say that if adequate support is forthcoming from the medical profession and hospital committees, it will not be long before neurosurgeons in Australia will give a good account of themselves.

In assessing the mortality rate I have analysed the results of operation in my last forty consecutive cases, in all of which the tumour has been found either at operation or at a *post mortem* examination. No case has been refused operation, excepting when it seemed certain that the tumour was a secondary carcinoma, or so situated, as for instance in the brain stem, as to preclude the possibility of successful removal. Several of the patients were practically moribund at the commencement of operation. The series does not include cases of arachnoiditis or subdural hæmatoma. Deaths occurring from any cause whatever after operation and before the patients left hospital are treated as deaths from operation.

Fifty operations were performed. Fifteen of the patients died, six within forty-eight hours of the operation. Thus the absolute mortality is 37·5%, the operative mortality 30%, and the mortality calculated over a forty-eight hour basis is 15%. The latter figure is included to show the fallacy of figures computed on a forty-eight hour basis.

Yours, etc.,

HUGH C. TRUMBLE.

63, Collins Street,
Melbourne,
March 9, 1936.

DIFFICULT CHILDREN.

SIR: Your leader on difficult children (March 14, 1936) strikes a most pertinent note.

Based on countless intelligence and other tests, a modern child must be reared on psychological lines. His talents must be catalogued, his vocation in life must be mapped out for him. He must be protected from undue exertion, mental and physical. Home work even must be taboo. He must be protected from psychic traumata. Growing girls especially must not be smacked, whether they like, deserve it or not, lest tremendous psychic harm should befall them; and so on *ad nauseam*.

I have not the slightest doubt that many leaders of the professions, including bishops and archbishops, were not only brought up on lines that we now regard as psychologically wrong, but also received severe thrashings when they deserved it, and suffered no psychological ill-effects.

Difficult children are undoubtedly a modern product. Children who refuse food, who "hold their breath", who have "tantrums" and are deliberately naughty, and perhaps commit crimes, are rare in large families, but are decidedly common in the present-day fashionable family of one or two. In such families the child is all-important and must get his way in all things. There is little about him to suggest the child. His conversation is that of an adult; he has grown up years before his time. The girl of five or six has too often the self-assurance, the boredom, the clothes-consciousness of a "flapper" of fourteen or fifteen. Such children must always retain their place in the limelight, cost what it will.

Problem children are commonly seen in psychiatric clinics. The boy who is so carefully guarded by his parents would become a normal boy if he was only allowed to behave like a normal boy and run wild, fighting, playing football and other manly games, raiding orchards and running around with a dirty face and torn clothes, instead of ever being such a fashion-plate. A hiding given whenever necessary would do far more good for these children than any amount of psychological precept. Indeed the only possible treatment in so many difficult children is to send them away from home, advice which is anathema to the parents.

Verily do we live in a psychological world. And yet one is cynical enough to be amused when he sees the modern young mother, bursting with psychological axioms, exhausted mentally and physically for months on end by the strain of bringing her one and only child into such a scientific and up-to-date world, nursed by her healthy and aged mother, who has always worked hard and has had many children. One too often wonders why "nerves" and "nervous breakdowns" are so fashionable in a population which speaks so glibly of child guidance, psychoanalysis and what not.

And also one wonders that at a time when criminals and crimes are so assiduously studied that crime should be as common as ever.

Surely, Sir, we have lost the art of looking at a thing steadily and seeing it as a whole. Are we not "debauching our minds with learning", and in the process are we not in danger of losing our common sense?

Yours, etc.,

S. MINOGUE.

Mental Hospital,
Newcastle,
March 19, 1936.

TUBERCULOUS MENINGITIS WITH RECOVERY.

SIR: I have read with interest the report of a case by Dr. Bertrand A. Cook, entitled "Tuberculous Meningitis with Recovery", in your journal of March 14, 1936.

With due respect I beg to differ from Dr. Cook in his diagnosis of the case. Some months ago I had under my care in England a similar case, the details of which I will submit to you for publication. I think that both Dr. Cook's case and my case are examples of a type of meningitis named by Collis "acute benign lymphocytic meningitis". Both Collis and Greenfield are of the opinion that it is probably a virus infection.

Yours, etc.,

JOHN A. McLEAN, M.D.

12, Collins Street,
Melbourne,
March 17, 1936.

Proceedings of the Australian Medical Boards.

VICTORIA.

ON Wednesday, March 4, 1936, the Medical Board of Victoria held an inquiry into the question of erasing or removing the name of a practitioner from the Medical

Register of Victoria for the reason that he is an inebriate within the meaning of the *Inebriates Act*, 1928, in that he is a person who habitually uses intoxicating or narcotic drugs to excess.

After consideration the Board required and obtained certain assurances from the practitioner concerned and decided to adjourn the inquiry to a date to be fixed.

The decision of the Board was announced in the following terms:

> The defendant appeared today and gave satisfactory assurances to the effect that:
>
> (*a*) he would abstain from all intoxicants and narcotic drugs, except as from time to time may be ordered by those in medical attendance upon him;
>
> (*b*) he would remain as a patient at a mental hospital for the ensuing twelve months or until such time as in the opinion of the superintendent of such hospital and the Medical Board of Victoria he is in a condition to engage in the practice of his profession;
>
> (*c*) he would not engage in the practice of medicine without first having obtained the approval of the Board to his so practising.
>
> The inquiry is hereby adjourned to a date to be fixed by the Medical Board of Victoria.

STAWELL MEMORIAL FUND.

The undermentioned additional subscriptions have been received for the Stawell Memorial Fund:

£21 1s.: Adelaide Post-Graduate Committee.
£2 2s.: Wm. Chisholm, Gregory Sprott.
£1 1s.: G. R. West, Cyril E. Cook.

Books Received.

RECENT ADVANCES IN MEDICINE, CLINICAL, LABORATORY, THERAPEUTIC, by G. E. Beaumont, M.A., D.M., F.R.C.P., D.P.H., and E. C. Dodds, M.V.O., D.Sc., Ph.D., M.D., F.R.C.P.; Eighth Edition; 1936. London: J. and A. Churchill. Demy 8vo, pp. 467. Price: 12s. 6d. net.

Diary for the Month.

Mar. 31.—New South Wales Branch, B.M.A.: Council (Election of Office-Bearers and Appointment of Standing Committees).

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xiv, xv, xvi.

Austin Hospital for Cancer and Chronic Diseases, Heidelberg, Victoria: Resident Medical Officer.

Ipswich Hospital, Ipswich, Queensland: Resident Medical Officer.

Metropolitan Infectious Diseases Hospital Board, Adelaide, South Australia: Junior Resident Medical Officer.

New South Wales Masonic Hospital, Ashfield: Resident Medical Officer.

Prince Henry's Hospital, Melbourne, Victoria: Resident Medical Officer.

St. George District Hospital, Kogarah, New South Wales: Acting Consulting Surgeon.

The Rachel Forster Hospital for Women and Children, Sydney, New South Wales: Assistant Medical Officer.

University of Cambridge, England: Diploma in Medical Radiology and Electrology.

Western Suburbs Hospital, Croydon, New South Wales: Honorary Consulting Dermatologist.

Yallourn Hospital, Yallourn, Victoria: Junior Resident Medical Officer.

Medical Appointments: Important Notice.

Medical Practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
New South Wales: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
Victorian: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
Queensland: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Chillagoe Hospital. Richmond District Hospital, North Queensland. Members accepting LODGE appointment and those desiring to accept appointments to any COUNTRY Hospital, are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
South Australian: Secretary, 207, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
Western Australian: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
New Zealand (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

Manuscripts forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to The Medical Journal of Australia alone, unless the contrary be stated.

All communications should be addressed to "The Editor", The Medical Journal of Australia, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2.)

Members and subscribers are requested to notify the manager, The Medical Journal of Australia, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognise any claim arising out of non-receipt of journals unless such a notification is received within one month.

Subscription Rates.—Medical students and others not receiving The Medical Journal of Australia in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £1 for Australia and £2 5s. abroad *per annum* payable in advance.